The patterns of development in generated narratives of a group of typically developing South African children aged 5 to 9 years.

by
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DECLARATTION

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ABSTRACT

Narrative skills have found to be a predictor of academic success with clear correlations to later reading and writing abilities in children. The quality of narratives and the language disorders displayed in specific clinical populations has also been correlated, making narratives a useful diagnostic tool. To be able to know what is atypical, one has to know what is normal. Normative based assessment materials are very limited in South Africa. Commercially available assessments are often inappropriate because of the complex nature of narratives and the influence of socio-economic, linguistic and cultural factors. There is therefore a need not only to develop appropriate assessment materials but also to obtain normative data for use in the South African context.

The main research question this study attempted to answer is*: What are the patterns of narrative development in normally developing children?* A total of 62 typically developing children from schools in a middle class residential area was selected. Three different age groups were identified: Grade R (5 to 6 years), Grade 1 (6 to 7 years) and Grade 3 (8 years 6 months to 9 years 6 months) based on their different exposure to literate language. It was assumed that they would display distinct patterns of narrative development, with an increase in the complexity of narrative features with age. A wordless picture book, regarded as appropriate for the South African context, was developed and used to elicit a narrative from each participant. Narratives were analysed using a comprehensive narrative assessment protocol. Assessment areas included macrostructure, microstructure, use of literate language and the use of abstraction. Results were compared in terms of group differences and developmental trajectories.

The assessment protocol showed similar story lengths in all age groups, suggesting that when the developed wordless picture book was used as elicitation stimulus, any significant differences between groups could be of diagnostic value. Results showed clear developmental trajectories in terms of macrostructural measures. The group differences between Grade R and Grade 1 in terms of microstructural measures were not significant. There was, however, a significant increase in terms of syntactic complexity and lexical diversity from Grade R to Grade 3. No significant development was observed in terms of the use of literate language features across the year groups and a group effect was offered as a possible explanation. In contrast to concrete statements, children as young as 5 years old used mainly abstractions in their generated narratives.

Clinical implications for speech and language therapists were discussed.

ABSTRAK

Narratiefvaardighede is nie net ‘n voorvereiste vir akademiese sukses nie, maar korreleer ook met lees- en skryfvaardighede in kinders. Weens die korrelasie tussen die kwaliteit van narratiewe en die taal van kinders met spesifieke taalgestremdhede, het narratiewe ook diagnostiese waarde. Om te weet wat *atipies* is, moet ‘n mens weet wat *normaal* is. Normatiewe evaluasiemateriaal is baie beperk in Suid-Afrika. Die evaluasies wat kommersieël beskikbaar is, is dikwels ontoepaslik weens die kompleksiteit van narratiewe en die invloed van sosio-ekonomiese, linguistiese en kulturele faktore. Dit is daarom belangrik om geskikte evaluasie materiaal te ontwikkel en normatiewe data te bepaal vir gebruik in die Suid-Afrikaanse konteks.

Met hierdie studie is daar gepoog om die volgende navorsingsvraag te beantwoord: *Hoe ontwikkel narratiewe in normaal ontwikkelende kinders?* ‘n Totaal van 62 tipies-ontwikkelende kinders is geselekteer uit hoofstroomskole in ‘n middelklas residensiële omgewing. Drie verskillende ouderdomsgroepe is geteiken op grond van hulle blootstelling aan geletterdheidstaal: Graad R (5 – 6 jaar), Graad 1 (6 – 7 jaar) en Graad 3 (8 jaar 6 maande – 9 jaar 6 maande). Daar is aangeneem dat die groepe baie spesifieke patrone in narratiefontwikkeling sou toon, met ‘n toename in die kompleksiteit van narratiewe met toename in ouderdom. ‘n Woordlose prenteboek, wat beskou is as toepaslik binne die Suid-Afrikaanse konteks, is ontwikkel en gebruik om ‘n narratief van elke deelnemer te ontlok. Narratiewe is ontleed met behulp van ‘n omvattende evaluasieprotokol. Areas vir ontleding het makrostruktuur, mikrostruktuur, gebruik van geletterdheidstaal en die gebruik van abstraksie ingesluit. Resultate is vergelyk ten opsigte van groepsverskille en ontwikkelingspatrone.

Die storielengte van die verkillende ouderdomsgroepe het ooreengestem en suggereer dat wanneer die woordlose prenteboek as ontlokkingstimulus gebruik word, enige beduidende verskille tussen groepe van diagnostiese waarde is. Die resultate het duidelike ontwikkelingspatrone getoon ten opsigte van makrostrukturele meetings. Groepsverskille tussen Graad R en Graad 1 was onbeduidend ten opsigte van mikrostrukturele metings. Daar was egter ‘n beduidende toename ten opsigte van sintaktiese kompleksiteit en leksikale diversiteit van Graad R tot Graad 3. Geen beduidende ontwikkeling is waargeneem ten opsigte van die gebruik van geletterdheidstaal oor die jaargroepe nie en ‘n groepseffek is as moontlike verduideliking gegee. Kinders so jonk as 5 jaar oud het hoofsaaklik abstrakte taal teenoor konkrete taal in hul narratiewe gebruik.

Kliniese implikasies vir spraak- en taalterapeute is bespreek.

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GLOSSARY OF TERMS AND LIST OF ABBREVIATIONS

Abbreviation or term	Definition
–ly adverbs	Adverbs with an *–ly* suffix (e.g. *suddenly, quietly*).
A	Action (one of the 7 story grammar categories described by Stein & Glenn, 1987).
A5LT	Average length of the five longest T-units.
Abbreviated episode	A story containing an event statement and consequence or internal response and consequence, but the goal is not always stated explicitly (Glenn & Stein, 1980 cited in Hedberg & Stoel-Gammon).
Abstract/concrete ratio	The ratio of abstract comments versus concrete comments within a narrative (Vorster, 1980).
Action sequence	Chronological order for actions within the story, but no causal relationships (Glenn & Stein, 1980 cited in Hedberg & Stoel-Gammon).
CI	Cochlear implant.
Complete episode	An entire goal orientated behavioural sequence is described (Glenn & Stein, 1980 cited in Hedberg & Stoel-Gammon).
DC	Direct consequence (one of the 7 story grammar categories described by Stein & Glenn, 1987).
DDW	Total number of different words.
Descriptive sequence	Descriptions of characters, surroundings and actions in largely unconnected sentences without chronological or causal relationships (Glenn & Stein, 1980 cited in Hedberg & Stoel-Gammon).
ENP	Elaborated noun phrase.
IE	Initiating event (one of the 7 story grammar categories described by Stein & Glenn, 1987).
IP	Internal plan (one of the 7 story grammar categories described by Stein & Glenn, 1987).
IR	Internal response (one of the 7 story grammar categories described by Stein & Glenn, 1987).
Literate language	In contrast to oral language, it demands a denser, more specified lexicon and more complex syntactic form to convey meaning without non-linguistic support (Westby, 1999).
M/L verbs	Mental and linguistic verbs.
Macrostructure	Also known as global structure and refers to the narrator's ability to construct a hierarchical representation of the main story elements (Norbury & Bishop, 2003). It is usually described in terms of story grammars, story structure complexity and/or narrative levels.

Microstructure	Also known as local structure and refers to narrative analyses at a linguistic level (McCabe & Rollins, 1994). It is usually described in terms of productivity, syntactic complexity and lexical diversity.
MLT	Mean length of T-unit.
MLU	Mean length of utterance.
Narrative	Narratives include personal or fictional stories and involve an orderly presentation of events leading to a logical resolution (Roth & Spekman, 1986).
ND	Normal developing (language).
NDW	Total number of different words.
PLI	Pragmatic language impairment.
R	Reaction (one of the 7 story grammar categories described by Stein & Glenn, 1987).
Reactive sequence	A story where certain changes automatically result in other changes, with no goal-directed behaviours or planning evident (Glenn & Stein, 1980 cited in Hedberg & Stoel-Gammon).
S	Setting (one of the 7 story grammar categories described by Stein & Glenn, 1987).
SLI	Specific language impairment.
TNT	Total number of T-units.
TNW	Total number of words.
TOLP	The Test for Oral Language Production (TOLD) (Vorster, 1980).
TTR	Type-token ratio.

1. INTRODUCTION

The development of narrative skills is important as almost all classroom instruction and written materials are presented at the level of connected discourse. Narrative skills have been found to be a predictor of later academic success with a strong correlation to later reading and/or writing abilities in children with or without language or learning disabilities (Liles, 1993; Paul & Smith, 1993; McCabe & Rollins, 1994; Paul, Hernandez, Taylor & Johnson, 1996; Roth, Speece, Cooper & De la Paz, 1996; Scott & Windsor, 2000; Norbury & Bishop, 2003; Klop, 2011).

As speech-language therapists we are often unsure as to our role in terms of working on academic skills to master the academic curriculum. However, we do understand our role in terms of early diagnoses of language learning problems in different populations with potential communication difficulties. Assessing children's narrative skills at a pre-school level is therefore very valuable in our field. It has shown to be a useful diagnostic tool in identifying specific language impairment (Wagner, Nettelbladt, Sahlén & Nilholm, 2000; Norbury & Bishop, 2003; Bishop & Donlan, 2005; Price, Roberts & Jackson, 2006) as well as autistic spectrum disorders (Norbury, 2003; Davis, Dautenhahn, Nehavin & Powel, 2004) and identifying children at risk for language based reading problems in the early phase of language acquisition (McCabe and Rollins, 1994; Cain & Oakhill, 1996; Catts, Bridges, Little & Tomblin, 2008).

1.1 MOTIVATION FOR THE STUDY

In order to know what is atypical, one has to know what is normal.

The development of narratives in typically developing children has been investigated extensively and will be discussed in detail in section 2.2. Although good benchmarks have been provided, little information is available on populations with communication difficulties in terms of normative data or standardised ways of assessment.

Normative data on British and American populations have revealed clear developmental trajectories of narrative development (Applebee,1978 cited in Hedberg & Stoel-Gammon, 1986; Merrit & Liles, 1987; Peterson, 1990; Shapiro & Hudson, 1991; Bamberg & Damrad-Frye, 1991; McCabe & Rollins, 1994), making it a useful clinical tool in charting an individual's progress and guiding intervention. However, narratives' sensitivity to cultural, socio-economical, linguistic, stimulus and contextual parameters (Rollins, McCabe and Bliss (2000); Fiestas & Peña, 2004; Uccelli & Páez, 2007) makes it impossible to use a single standardised assessment protocol as a universal tool.

Penn (1998) reviewed the study of child language in South Africa and highlighted the unique multilingual and multicultural nature of the population (refer to 2.1.3). The inappropriate use of translated and adapted assessments methods were mentioned. Rollins et al. (2000) went further in stressing the importance not to mistake impaired narration with cultural variation.

In understanding the need for and value of narrative assessment within our field, the importance of obtaining information on the developmental patterns of narratives within the South African population is crucial. However, despite our extensive knowledge, a culturally appropriate, comprehensive norm-referenced assessment battery for use in the South African context has not been developed yet. The reason for this is most probably due to the complex nature of narratives and factors affecting assessing these.

The focus of the study was to investigate developmental patterns in the narratives of in a group of normally developing South African children, using an appropriate narrative assessment protocol. The long term aim would be that possible developmental patterns could be used as guidelines in identifying potential communication and reading problems and to direct intervention.

1.2 RESEARCH DESIGN AND METHODOLOGY

A cross-sectional research design was used to investigate and report on the distribution of the selected narrative variables across three different age groups. The three age groups (Grade R, Grade 1 and Grade 3) were selected from mainstream schools in a middle class residential area in the northern suburbs of Cape Town. The three different groups provided the researcher with narrative data which was used to discern patterns of narrative development in normally developing children.

Based on and informed by a critical review of the literature, a wordless picture book was designed using a story line appropriate for the South African context. This book was professionally illustrated to elicit generated narratives from children. Narrative variables, sensitive to development with age, was identified from the literature and targeted for analysis, aiming to give a comprehensive overview of narrative development with age. Statistical analysis (Chi-square testing as well as one-way ANOVA) focussed on identifying specific group differences and developmental patterns with age.

1.3 RESEARCH QUESTION, AIMS AND HYPOTHESIS

The main aim of the study was to investigate the patterns in the development of narratives in a group of normally developing South African children between the ages of 5 years and 9 years and 6 months, using a single assessment protocol, covering a range of important parameters included in a comprehensive analysis of the narrative skills of children, was developed and used for this purpose.

The main research question was: *What are the patterns of narrative development in a group of typically developing, South African children?*

This was structured around examining the differences and developmental trajectories between the narratives of participants in three different age groups, in terms of a variety of narrative variables, including: microstructural and microstructural variables, the use of literate language features and content used.

It was assumed that participants in the three age groups would display distinct patterns of narrative development and that there would be an increase in the complexity of participants' narrative features with age.

1.4 OUTLINE OF THE THESIS

The thesis is structured as follows. In **chapter 2** an overview of the literature is provided to give a theoretical framework for the study. The complex nature of narratives is discussed, followed by a discussion of the normal development of narrative skills in children as reported on in British and American populations. An overview is given on assessment of narratives skills, important factors to consider when eliciting and collecting narrative samples and variables to consider when analysing narrative structures. Narrative skills in different clinical populations are discussed and followed by a rationale for the developing of an assessment protocol for analysis of narratives for use in the South African context. **Chapter 3** documents the research design and the procedures followed in selecting the participants, developing and using the self designed narrative assessment protocol and collecting and analysing the narrative data. In **chapter 4** the findings are described and discussed, structured around the main aims of the study. **Chapter 5** concludes the findings and answers the main research question in terms of the major group differences found as well as developmental trajectories observed in the narratives. The relevance of the study to the South African context is discussed and limitations and clinical implications are highlighted.

2. LITERATURE REVIEW

The focus in assessing and habilitating communication pathology has moved from very specific areas in speech and language comprehension and production, to the assessment of the more global or functional use of language. Using narratives as a tool to achieve this goal is not new, but experts in the field of communication increasingly use narrative analyses to obtain information about communicative competencies.

This chapter will provide a theoretical framework for the study. The complex nature of narratives as well as available normative data based on mainly American and English published research will be discussed. An overview will be given on the assessment of narrative skills in terms of current assessments available, factors to consider when eliciting and collecting narrative samples, methods to analyse narrative samples and how to interpret results. Findings on the characteristics of narratives in different clinical populations will be presented. The need to develop an assessment protocol for the analysis of narratives suitable to the South African context will also be addressed. Although some of the references seem dated, for example published research by Stein and Glenn (1979), Liles (1985), Hedberg and Stoel-Gammon (1986), Roth and Spekman (1989), Merrit and Liles (1987) and Peterson and McCabe (1991); these are seminal works that form the basis of current approaches.

2.1 THE NATURE OF NARRATIVES

2.1.1 Defining narratives

A narrative, as conversation, forms part of discourse and is therefore an important part of day-to-day conversation and learning.

Sleight and Prinz (1995 as cited in Crosson & Geers, 2001) define discourse as the “ability to use vocabulary and syntax skills in a cohesive manner to relate a series of events, it incorporates most of the language skills beyond the sentence level and represents the primary language medium through which academic knowledge is conveyed and acquired” (p.381). Narrative discourse is defined by Roth et al. (1996) as “units of spoken text beyond the sentence level, and includes the ability to construct an original story and to recall a previously heard story” (p. 258).

The functions of stories include preserving the culture of a civilisation, as a means of instructing others, explaining natural phenomena, conveying the predominant social and moral codes of a

society, resolving personal and social problems and to entertain (Stein, 1982a). Hedberg and Stoel-Gammon (1986) go further in stating that "knowledge of story structure contributes to people's understanding of how the world functions, facilitating predictions of actions and consequences, causes and effects" (p. 58).

Most researchers recognise the complex nature of narrative production and comprehension in terms of integrating linguistic, cognitive and social abilities (Liles, 1993; Botting, 2002). In looking at the possible relationships between language, pragmatics and narrative ability, Norbury and Bishop (2003), concluded that language ability is the key determinant of narrative competence. Pragmatic skills were found to be an independent, but equally important determinant of narrative competence.

2.1.2 Theoretical perspectives

Extensive research on the theoretical perspectives of narrative use exists. Professionals in the field of speech and language therapy, linguistics and psychology agree on the ***pragmatic nature of language used in a narrative,*** regardless of their theoretical perspectives. This leads to many challenges when one wants to study narratives. Contexts of narratives, genre, listener circumstances, and many other factors discussed later, will most definitely play a part in the narrative end product. These factors need to be taken into consideration when attempting to use narratives as an assessment tool in research. Specifying elicitation and analysis methods to control this, will be discussed in section 2.3.2 and 2.3.3.

In addition to researching the pragmatic nature of narratives, researchers have also used narrative production as a means to describe the acquisition and development of a variety of aspects of language use. Narratives have been described *as an* ***index of cognitive and social ability***. Rumelhart (1980, as cited in Duchan, 2004) describes a "schema" as "the building blocks of cognition" (p. 380). Story grammar (described by Stein and Glenn, 1979) is a type of "schema" related to story organisation, aiding children in understanding and retelling simple stories. Rumelhart further states that schemas help children interpret and remember experiences, and it allows them to predict what will happen on new occasions. This is made possible by schemas, which "provide the conceptual basis for children to recognise and understand parts of things as whole entities" and offering a means for "interpreting parts of things in relation to other parts, and in relation to the whole" (p. 381). Therefore, narrative schemas represent the underlying structure of discourse found in stories told by children. Although researchers do not always agree on factors involved in the development of narrative use, findings from analyses of developmental trends in the formal structure of narratives do

reflect aspects of cognitive and social development. The normal developmental patterns of narratives published in the literature will be discussed in section 2.2.

Liles (1993), in her review article, also refers to researchers claiming that the language produced in narratives is a more valid ***index of semantic ability*** than language produced in single sentences. Examples include the development of verb classes (Bennett-Kastor, 1986 cited in Liles, 1993) and conjunctions (Braunwald, 1985). Liles (1993) considers intersentential coherence to be more closely related with linguistic use than the cognitive organisation of content structure. Many researchers, however, do see these as intricately related. In investigating coherence, clear developmental trends were found (Scott, 1984; Kemper & Edwards, 1986; Peterson, 1990; Trabasso & Nickels, 1992; McCabe & Rollins, 1994; Johnson, 1995). Claims have also been made in terms of the use of this information in distinguishing between different communication pathologies (Griffith, Ripich & Dastoli, 1987; Merrit & Liles, 1987; Paul & Smith, 1993; Liles, 1993; Watkins, Kelly, Harbers & Hollis, 1995; Kaderavek & Sulzby, 2000; Norbury & Bishop, 2003; Finestack, Fey & Catts, 2006).

2.1.3 The influence of cultural and linguistic differences on the narratives of children

“Children in different language and cultural communities may exhibit differences in discourse production, particularly as related to narratives” (Fiestas & Peña, 2004, p. 155).

Published research suggests that because children learn form the narrative examples produced by their families and culture, narratives will differ cross-culturally. Linguistic factors have also been found to play an important role in terms of the choice of for example coding motion, grammatical markers, and so forth (Fiestas & Peña, 2004; Price, Roberts & Jackson, 2006).

The transcription of narratives of bilingual children has found to be very useful in providing an accurate and reliable research foundation for clinical use of narrative samples in this group (Heilmann et al., 2008). Findings on the narratives skills of bilingual children emphasise the diversity in narrative skills and developmental trajectories in the two different languages and argue that assessment should be done in both languages (Fiestas & Peña, 2004; Uccelli & Páez, 2007). Serratrice (2006) however found that bilingual Italian-English children could achieve a high degree of language-specific discourse-pragmatic competence in both of their languages, despite the predictable areas in which their performance differs from their peers and therefore assessment of narratives in both languages may not be necessary.

Normative data available in the literature is mainly based on British and American English speaking study populations and very little data is available for children from the different culture

and language groups prevalent in South Africa. Penn (1998) reviewed the study of child language in South Africa. She emphasized the unique multilingual and multicultural nature of the South African population, which is easily highlighted by the fact that there are 11 official languages and many others due to the high number of immigrants. As English is perceived as a language of status, most children in South Africa, speaking a so-called black language as a mother tongue, are bilingual with classroom instruction often done in English by teachers who are speaking English as a second or third language. Challenges are also highlighted based on the socio-political context in the country, with poor literacy skills evident and children with language impairment historically under served. The available clinicians are usually at most bilingual, and trained at Afrikaans or English Universities. Where speech and language therapy services are available, children are often being assessed using culturally inappropriate assessment materials, presented in their second language and normative data standardised on non-South-African populations.

Research on normal language acquisition shows very different trajectories in different culture groups and even the non-standard English forms of different groups in South Africa show distinctive features. This phenomenon was also reported by Rollins et al., (2000). Researchers found that language tests developed elsewhere are not suitable for South African children. Penn (1998) argues that the unique characteristics of the South African situation, coupled with the shortage of trained personnel, determine the methods of assessment and intervention used in this country.

The narratives from different cultural groups are distinctly organised and different measurements may reflect cultural variation and not impaired narration. It is, however, equally important not to mistake impaired narration for cultural variation (Rollins et al., 2000).

2.1.4 Links between pre-school narration and literacy acquisition

Narratives function as an important transition between oral language and the acquisition of literacy in children (Westby, 1991), as for the developing child a narrative provides a bridge between the highly conceptualised language of home and decontextualised language of an educational setting (Nikolopoulos, Lloyd, Starczewski & Gallaway, 2003). Young children use their oral language skills to learn to read, while older children read to learn (Westby, 1991). Although learning language and learning to read are both determined by the interaction of biological, cognitive, psychosocial and environmental factors, the weight of these factors differs for the two skills (Kamhi & Catts, 1991).

Findings by Cain and Oakhill (1996) suggest that lack of story knowledge is more likely to be one of the causes, rather than the result, of poor reading comprehension skills. Roth et al. (1996) and McCabe and Rollins (1994) confirm this in stating that children use their knowledge of narrative structure in their efforts to decipher and understand text.

Similar language skills are needed to be able to produce a coherent narrative and to understand printed text. Both focus on topics that are frequently unfamiliar and abstract, containing lexically rare and rich vocabulary and requiring cognitive distancing from reality (Roth et al, 1996). They also include conjoined and temporally related events, cause and effect relationships and methods of identifying and specifying characters and following them throughout the story (Crosson & Geers, 2001). Norris and Bruning (1988) found that poor readers, irrespective of grade level, exhibit less cohesion in their narratives, with the deficit reading achievement of children with specific language impairment persisting in the middle and high school grades (Catts et al., 2008).

Narrative discourse and meta-linguistic awareness are the two aspects of oral language that have been focussed on in discussions about theories regarding the development of reading skills, with narrative discourse, phonemic awareness and meta-syntactic ability identified as predictors for the development of reading skills (Roth et al., 1996).

Schema theorists see *schemas* as serving a central role in children's language and literacy development and performance. Duchan (2004) reviewed the literature and selected areas that had the clearest associations with schema theory and which are also closely related to language and literacy. In summary, she found that the development of prototypes not only provides children with a means to classify sounds and letters, but also provides a way to understand the differential roles of attributes within a hierarchical classification system. In acquiring event representations, children are provided with fundamental understanding and structuring of familiar events. The growth of narrative schemas further offers a way to conceptualise story plots and character roles.

Duchan (2004) further describes how schemas grow. Phonological prototypes are known at birth and by the age of 5 children may have developed knowledge, some in the form of schemas, about the nature of print. These prototypes also exist for spelling. Children who are learning to read and write draw from schemas about sounds, letters and words, and how these units work together to construct meaning. Finally schemas underpin students' ability to reflect on what they have learned, so that they can use the knowledge elsewhere. Duchan (2004) states: "Indeed, one could argue that schema understanding and use is at the heart of what it means to be educated" (p. 390).

The limited reading skills of groups of the population with communication impairments have been linked to narrative abilities. From these studies it becomes clear that poor story telling ability is not only a sign of language delay or disorders, but also a predictor of later literacy skills and academic outcomes (Liles, 1993; Paul & Smith, 1993; McCabe & Rollins, 1994; Paul et al., 1996; Roth et al., 1996; Scott & Windsor, 2000; Kaderavek & Sulzby, 2000; Crosson & Geers, 2001; Norbury & Bishop, 2003; Spencer, Barker & Tomblin, 2003; Geers, 2003; Geers, 2004). A study by Klop (2011) on the relationship between reading comprehension and narrative skills of South African children in Grade 3 confirmed these findings.

Klop (2011) states that if the oral language needed for daily interaction and the language skills needed to succeed in a formal school environment differs, there is a risk of academic failure. Children need to discover the interrelationships between oral language, literacy and narrative skills to foster academic success.

By acknowledging the link between narrative skills and literacy, McCabe and Rollins (1994) and Benson (2009) stated that it might now be possible to identify children at risk for language based reading problems in the early phases of language acquisition.

2.2 NORMAL DEVELOPMENT OF NARRATIVE SKILLS

Studies often focus on different aspects of narrative development for different age groups and it is therefore hard to rely on existing literature for normative information. The range of ages sampled is also limited as usually only a few subjects are observed, making it hard to show developmental progress. There are several factors impeding the compilation of norms, including the ranges of ability, diversity of genres, the situation and cultural diversity (Johnson, 1995; Rollins et al., 2000). From the research that is available we are, at most, able to chart an individual child's growth in narrative ability.

The ability to engage in conversational speech is a prerequisite to producing oral narratives. In general, young children must have attained a mean utterance length of at least three words before they can respond to the request to tell a story (Hedberg & Stoel-Gammon, 1986). These pre-schoolers typically show good knowledge of story grammar given a favourable context (Peterson, 1990).

Children show clear developmental patterns in both the structure and content of stories they create or retell. Very young children produce shorter narratives with fewer different words (Bamberg & Damrad-Frye, 1991), less complex syntax and less complex or incomplete story

grammar or structure (Hudson & Shapiro, 1983; Garnett, 1986; Merritt & Liles, 1987; Shapiro & Hudson, 1991).

In an attempt to describe the developmental patterns in narratives, researchers have identified different stages in the development. These stages are often linked to different age groups to guide identification of problems and plan and monitor intervention.

By using the *high-point analysis* to identify narrative macrostructure of personal event narrative skills of ND Northern American English-speaking pre-school children, McCabe and Rollins (1994) identified clear developmental patterns. These are summarised in Table 2.1

Table 2.1
High-point narrative structure showing stages of narrative development

Narrative structure	Expected age	Characteristics
One event narrative	< 3.5 years	Contains a single event.
Two event narrative	3.5 years	Contains two past events but often out of sequence with no logical or causal relationship in the real world or in the narrative.
Leapfrog narrative	4 years	Contains two or more related past events, but often out of sequence
End-at-high-point narrative	5 years	Contains 2 or more related past events in a logical or causal sequence, dwelling on the climatic event at the end of the narrative with no following events (resolution).
Classic narrative	6+ years	Contains two or more well formed related past events in a logical or causal sequence, building to a high point and resolving itself.

Adapted from McCabe and Rollins (1994)

Applebee (1978 cited in Hedberg & Stoel-Gammon 1986) described six basic types of organisation that can be observed as a child develops skills in linking objects or attributes, sequencing events and integrating these in the construction of a story. These are described in table 2.2.

Table 2.2
Developmental Schemas leading to the construction of mature narratives

Developmental Schema	Description
1. Heaps	Structures in which the child puts together a number of objects or ideas based on immediate perceptions, with no inherent organisation (macrostructure) and few, if any, links from one sentence to the next.
2. Sequences	Demonstrate simplistic macrostructures that involve only a central character or setting and no story plot. Although they are called sequences, stories of this type have events that do not follow each other either temporally or causally. Children's retelling of their favourite television show often demonstrates this kind of structure.
3. Primitive narratives	Include a central person, object or event that has temporarily assumed importance. Unlike sequences, the elements of the primitive narrative follow logically from the attributers of the centre. Thus, a bad character does bad things and is punished; a good character does good things and usually ends up happy. This signals the first appearance of inference in stories, with an event leading to a feeling or a feeling leading to an event.

4. Unfocused chains	No central characters or theme, and therefore it does not have a macrostructure, but the individual microstructure elements hang together, because each element shares a relationship with the adjacent one. As in the game of "gossip."
5. Focused chains	Combination of a central character or theme with a true sequence of events. However, the sequence of events is not dependent on strong attributes of the character, and the characters are not motivated to achieve a goal. Stories of this type often end abruptly with "the end."
6. Narratives	Stories with a central character, theme and plot. They included components that explain the motivation behind the characters' actions. There is a reciprocal nature between the centre or theme of the story and the events of the story, with the attributes of the centre giving rise to the events, and the events in turn, modifying the centre. True narratives often have endings that are climatic, moralistic or evaluative.

Based on Applebee (1978) and summarised by Westby (1991)

The narrative levels proposed by Applebee (1978) will be used as a guideline to summarise the normative data in narratives development found in the literature.

Stage 1: Heaps (2 years old)

This stage represents the onset of the development of discourse (McCabe & Rollins, 1994). The child may relate a collection of unrelated ideas. Topics of discussion switches frequently and cohesive devices are not used to link the story together (Hedberg & Stoel-Gammon, 1986; Owens, 2010). Noun phrases are introduced as agents and then later through the use of pronouns. This group mainly uses action and motion verbs (Bennet-Kastor, 1986 cited in Liles 1993).

Stage 2: Sequences (2 - 3 years old)

Events are arbitrarily linked on the basis of similar attributes and are described by McCabe and Rollins (1994) as "two event narratives". A sequence is brief and usually about familiar events, containing a central character, topic or setting (Hedberg & Stoel-Gammon, 1986). Orientations therefore include *where* but not *who* (Peterson, 1990). Very simple sentence structures are used (Kemper, 1984 cited in Hemphill, Picardi, & Tager-Flusberg, 1991), predominantly consisting of actions (Kemper & Edwards, 1986) to create a simple but meaningful focus for a story (Owens, 2010). Simple types of causal links are used, with initiations and motivations largely absent (Kemper & Edwards, 1986).

Stage 3: Primitive temporal narratives (3 - 4 year olds)

At this stage the goal is to sustain a story rather than resolving problems (Garnett, 1986). Primitive narratives, like sequences, contain a central character, topic or setting. Events are organised around the centre with complementary events and usually start to emerge around the age of three to five years old (Owens, 2010). What distinguishes this stage from sequences is the child's discussion of the character's facial expressions or body postures (Hedberg & Stoel-

Gammon, 1986). Referencing is also starting to emerge, mainly by using pronouns (Bliss, McCabe & Miranda, 1998)

Stage 4: Unfocused temporal chains (4 - 4 ½ years old)

To tell a story, a child must be able to relate chains of events in such a way as to explain *what* happened and *why* (Kemper & Edwards, 1986). The unfocused chain does not contain a central character and consists of a sequence of events that are linked logically or with a cause-effect relationship (Hedberg & Stoel-Gammon, 1986). The linking attributes, such as character, setting or action, shift and therefore there is no centre to the story (Owens, 2010). The conjunctions *and*, *but* and *because* may be used (Owens, 2010) and children are starting to produce complete episodes (Liles, 1993).

Children are starting to talk about common plans and they are able to comment on their own and other's mental states as well as causal relations using a variety of connectives (Kemper & Edwards, 1986) when they talk or comment about shared experiences. They are limited when asked to tell fantasy narratives due to their unfamiliarity with complex motivations (Griffith et al., 1987).

Stage 5: Focused temporal or causal chains (around 5 years old)

Liles (1993) showed that there is a progression in the development of complete episodes to well formed narratives at the age of five. Westby (1991) confirms this by stating that by the time children are 5 years old, they can tell entertaining stories, with settings, episodes and endings.

Focussed chains contain a central character and a logical sequence of events. Stories are built around a main character, going through a series of linked, concrete events (Owens, 2010). The events described often take the form of "adventures" and the listener is asked to interpret the ending (Hedberg & Stoel-Gammon, 1986).

Causality usually involves descriptions of intentions and unobservable states such as emotions and thoughts and the use of causal connectives (Kemper & Edwards, 1986). Bamberg and Damrad-Frye (1991) investigated the changing functions of evaluative devices in children's narratives and found that 5 year olds used equal numbers of the different evaluation types.

Stage 6: Narratives (around the age of 6)

True narratives focus around an incident in a story. There is a true plot, character development and a true sequence of events. The centre of the story is developed as the story progresses and motives for characters' actions are being described. There is a problem in the story, which is resolved at the end (Kemper & Edwards, 1986; Owens, 2010).

Peterson (1990) found that pre-school children display knowledge of story grammar when provided with contexts that elicit these elements. As they get older they start to link events, and narratives become increasingly longer, though it is typically not until the elementary school years that complex syntactic structures, including a variety of connectives, emerge (Scott, 1984). However, it is only after they have entered school at the age of 6 that they learn to tell stories relating to the "inner life" of characters as reflected by internal response statements (Kemper, 1984; Roth & Spekman, 1987; Westby, 1991). In late elementary years, adverbial clauses of time (*when*) and reason (*because*) predominate. Towards the later elementary years, nominal clauses used include *that* and *wh-* nominals (Gummersall & Strong, 1999). Subordination expands to include consequence (*therefore*), concession (*though*, *even*, *if*, *unless*) and manner (*as*). Embedding of elements also begins to occur and by the age of 9, Loban (1976, cited in Gummersall & Strong, 1999) reports that approximately 20-30% of sentences spoken, contain a subordinate clause. Scott (1984) found that adverbial conjunctions are just emerging at this age, but the use is limited.

Liles (1993) and Owens (2010) confirm that the "ideal narrative structure" is formed by the age of 6, however development continues beyond the age of 9. Merrit and Liles (1987) found that the story component mostly used by 9-year-old children in story generation tasks is initiating events (IE), followed by direct consequences (DC), actions (A), settings (S), internal response (IR) and then reactions (R).

A quantitative comparison of the use of evaluative devises by Bamberg and Damrad-Frye (1991) showed that adults used evaluations (i.e. references to emotions, character speech, "hedges"[1], negative qualifiers and causal connectors) three times more than 5 year olds and 2½ times more than 9 year olds. Adults used references to "frames of mind" and "hedges" more than children.

Justice et al. (2006) found performance data showed a developmental increase in the means of nearly all microstructural measures through age 10, followed by a drop in performance for older age groups. Data showed that older children (11 – 12 years old) were producing narratives that structurally look like those of younger (8 - 9 year old) children. It was suggested that children might have reduced interest in producing elaborated narratives at this age.

In summary, children as young as 2 are able to converse in a simple way and by the time they are 3 - 4 years old, they are able to convey simple stories in a simple manner. Around the age of 5 there is an acceleration in the development of complete episodes to well formed narratives. It is only when children are exposed to more formal language in formal education at the age of 6,

[1] Hedges are described by Bamberg and Damrad-Frye (1991, p. 692) as "distancing devices", for example *probably, looks like* and *kind of.*

that true narratives are produced. Narratives have shown developmental trajectories in terms of macro- and microstructure as well as other narrative measures even beyond the age of 9.

2.3 ASSESSING NARRATIVE SKILLS

In the field of speech and language therapy, three methods are mainly used when assessing the communication abilities of children. All of these are based on what is known about normal development and may not be appropriate for pinpointing the types of problems that arise in children with communication difficulties (Scott & Stokes, 1995). The methods include: standardised tests, observation in naturalistic contexts (these are usually rated globally on various aspects of pragmatic function), and rating scales (which are known to be subjective and dependant on the person giving the information, as well as other factors).

The potential of narratives as a clinical assessment tool has been explored. The developmental trajectories within narratives of normally developing children and correlations found between the qualities of narratives of different clinical groups make narratives a useful diagnostic tool.

When analysing narratives, we take into account a wide range of language abilities used in everyday life, including the child's educational environment. This analysis facilitates a broad description of the child's use of language, including the interaction of sentence formation, ways that meanings are conjoined across sentences and the general organisation of content (Merrit & Liles, 1989).

The development of narratives in normally developing children has been investigated extensively. Although good benchmarks have been provided, little information is available on populations with communication difficulties in terms of normative data or standardised ways of assessment. Due to the complex nature of skills required to produce a narrative, researchers often focus only on specific aspects of narrative development, leading to limitations when interpreting results and comparing findings.

2.3.1 Current narrative assessments available

Attempts have been made to develop standardised procedures for assessing narrative skills. ***The Test for Oral Language Production (TOLP)*** (Vorster, 1980), developed in South Africa, is a comprehensive instrument using three photo sequences to generate narratives to measure 16 aspects of oral language production of children. These aspects include measures of productivity, syntactic complexity, correctness, fluency and content.

The ***Bus Story Test*** (Renfrew, 1997) is a screening test of verbal expression looking at the use of narrative speech. The story-retelling task is based on a picture book of a "naughty bus" that ran away and got into trouble. The illustrated red bus will be a well-known character to most (if not all) British English children, but is not appropriate in the South African context. The retold story is scored only in terms of the following: Information (referring to the most frequent responses as listed on the scoring form), sentence length (mean length of 5 longest sentences) and the use of subordinate clauses. The test was standardised on a group of 573 British children. A significant correlation was found between socio-economical status and results obtained.

Bishop (1998) developed the ***Children's Communication Checklist (CCC)***, for assessing qualitative aspects of communicative impairment in children. This was found to be a more useful tool than standardised tests, in assessing the pragmatic aspects of communicative difficulties in 7 to 9 year old children by teachers and speech and language therapists. However, the risk of subjective biases was highlighted amongst other shortcomings.

Starczewski and Lloyd (1999) developed the ***Story/Narrative Assessment (SNAP dragon)*** procedure for use with deaf children using their preferred mode of communication, to illustrate progress after cochlear implantation. Analysis focuses on discourse and content and includes use of story grammars and semantic combinations (for example, goals, attributes, interrogatives, connectivity, and so forth). Story generation is used based on a set of 14 picture-based stories. Unfortunately these stories were clearly developed for the United Kingdom context, with the stories seasonally bound and "Dragon family" characters not typically applicable to the South African story-context.

The ***Narrative Assessment Profile (NAP)*** is described by Bliss et al., (1998) and is used to show the development of six dimensions of narratives, namely topic maintenance, event sequencing, explicitness, referencing, conjunctive cohesion and fluency. This assessment seems sensitive on a macro- and microstructural level to distinguish children with SLI from those with normally developing language.

The ***wordless picture book*** *Frog where are you?"* (Mayer, 1969) is widely used in examining the narratives of children with normally developing language (Bamberg & Damrad-Frye, 1991) and in clinical populations (Van der Lely, 1997) and was found to be best suited for eliciting a more complex language sample (Fiestas & Peña, 2004).

The ***Test of Narrative Language (LNT)*** (Gillam & Pearson, 2004), ***Edmonton Narrative Norms Instrument (ENNI)*** (Schneider, Hayward & Dubé, 2006), ***Index of Narrative***

Microstructure (INMIS) (Justice et al., 2006) and the ***Narrative Scoring System (NSS)*** (Heilmann, Miller & Nockerts, 2010) were not commercially available in South Africa at the time of data collection.

There is currently no single assessment protocol that provides an overall view of narrative skills and many speech and language therapists make use of informal ways. This is usually based on the published guidelines aiming for better control when using narratives as a clinical or research tool. Klop (2011) stresses the challenges in using norms and criteria obtained from published research. Methodological differences between studies (such as sample size, age of participants, procedures for narrative elicitation, participant selection criteria and variables investigated) make it difficult to compare and interpret results. It is however important to understand the relationship between narrative task parameters and the narratives produced by children. This will be discussed in sections 2.3.2 to 2.3.4.

2.3.2 Eliciting and collecting narrative samples

Hedberg and Stoel-Gammon (1996) identified different factors that need to be taken in consideration when deciding on how the narrative sample is going to be elicited. These include subject characteristics (age, verbal abilities, interests and gender, stimulus mode), intelligibility of speech and/or writing skills for analysis, and the stimuli used to elicit the story. Little guidance has, however, been given in the literature on exactly how to decide on the specific procedure for a particular study or study subjects.

2.3.2.1 Eliciting the narrative sample

Story generation and story retelling tasks are used to elicit both spoken and written narratives in children (Merrit & Liles, 1998). A child's ability to ***generate a narrative*** without an adult model probably provides a more realistic impression of his/her planning and expressive language abilities, however generated narratives are difficult to control and score (Merrit & Liles, 1989).

A ***story-retelling*** task offers the best potential for standardising a story task, as the stimulus input (e.g. story length, content, grammatical complexity and input modality for presenting the story) can be controlled, but it might not be the optimal approach for assessing narratives in young children (Rollins et al., 2000). Comprehension of stories can only be assessed in the retelling task, but a specific level of comprehension is required to understand the story (Cain & Oakhill, 1996). Gazella and Stockman (2003) found story retelling yielding the longest and most grammatically complete utterances, with responses to direct questions yielding the largest number of utterances and different words.

Research has been done on retold and generated narratives of normally developing (ND) children and children with specific language impairment (SLI) (Merrit & Lyles, 1987; Ripich & Griffith, 1988; Gazella & Stockman, 2003). Findings were consistent in that both groups used story grammar organisation across tasks, but the retold stories were generally longer and contained fewer inaccuracies in both groups, regardless of age. Retold stories have also found to contain more story grammar components than the generated stories, regardless of the group. This is most probably due to the fact that an adult model is given in the retold task. This was confirmed by Botting (2002) who found less productive narratives in a generated narrative task. She also found that retelling was most sensitive to distinguish children with ND language from those with SLI.

Merrit and Liles (1989) found that the story structure used across tasks was almost identical and they argued that the distinction might not be critical when designing a study. However, Shiro (2003) stated that given the importance of the task-related factors on narrative production, as demonstrated in the literature, it is clear that children's narrative competence cannot be assessed in a single story–telling task.

2.3.2.2 Presenting the elicitation stimuli

There seems to be a link between the presentation modality of the elicitation stimuli (for example a wordless picture book, single picture description or an animated video) and the length and structure of the narrative produced by pre-schoolers and school aged children (Hedberg & Stoel-Gammon, 1986; Gummersall & Strong, 1999; Tönsing & Tesner, 1999; Scott & Windsor, 2000). However Engelbrecht (2011) found that two different visual modalities elicited narratives of similar quality in terms of micro- and macro-structure variables.

Gazella and Stockman (2003) found that presentation modality for retelling (audio-only or combined auditory-visual presentation) did not yield a performance advantage for all but two variable measured (story length and grammatically completeness of utterances), irrespective of the response task (story retelling or answering direct questions). Responses to direct questions yielded the longest utterances and different words.

With regard to the structural organisation of the narratives produced by pre-schoolers, it was clear that they benefited from highly structured stimuli, such as action pictures of model stories (Cain & Oakhill, 1996; Tönsing & Tesner, 1999; Botting, 2002; Miles, Chapman & Sindberg, 2006). However, Griffith et al. (1987), Schneider (1996) and Gazella and Stockman (2003) found that the use of pictures had a negative influence on the recall of some structures as it seemed to affect the storyteller's assumption of the listeners "need to know".

In recognising the different narrative task demands using different ways to elicit stories (including stories presented visual only, audio only and combined) Schneider (1996) suggested that both oral-only and pictures-only conditions should be included in assessment.

Another interesting fact noted from the literature is that there were different effects of elicitation stimuli on different clinical populations (Ripich & Griffin, 1988; Scott, 1988a; Pearce, McCormack & James, 2003). Schneider and Dubé (2005) also found differences in different age groups in that preschoolers recalled more content in combined (picture and oral) presented stories, than pictures only. Second graders recalled more content in oral only than combined presentations. Thus both grades provided more story information when they retold a story presented orally than when they had to tell a story form pictures alone.

2.3.2.3 Genre for story telling

Researchers emphasise the fact that the appropriate genre for story telling is essential when assessing the narratives of pre-school children (Polanyi, 1982; Shiro, 2003; McCabe & Rollins 1994; Wagner et al., 2000; Rollins et al., 2000). The results of their research suggested major differences in the ways normally developing children develop genre-specific narrative skills. Personal event narratives are recommended for eliciting the narratives of young children, because they show the clearest developmental progression during pre-school years (Rollins et al., 2000) and are more readily told by youngsters (Tönsing & Tenser, 1999). Construction of fictional stories is viewed as inappropriate for pre-school children, in both the above-mentioned studies.

2.3.2.4 Listener conditions

Liles (1985) looked at the effect of different listener conditions (known and unknown movie that had to be retold by school-aged children). Both normally developing children and children with language disorders altered the use of cohesion strategies in response to listeners' shared or unshared experience. Both used more cohesion with the uninformed listener.

2.3.3 Analysing narrative samples

Researchers have used narratives to analyse a wide variety of language and story aspects. Descriptions and definitions of assessment areas sometimes overlap and sometimes even contradict. An attempt has been made to give an overview of narrative areas analysed and published in the literature. Not only was the usefulness of narratives as an assessment tool confirmed, but also the complexity, when one considers the development of a single standardised assessment. Figure 2.1 is an attempt to summarise the narrative measures published in the literature.

Note that the assessment areas often overlap and once defined they may also be described under different headings. All of the possible measurements will be described in terms of a broad definition and published evidence of developmental trajectories. Sensitivity of the measure to distinguish clinical groups will be touched upon and followed by a more detailed discussion in section 2.4 on Narrative skills in different clinical populations.

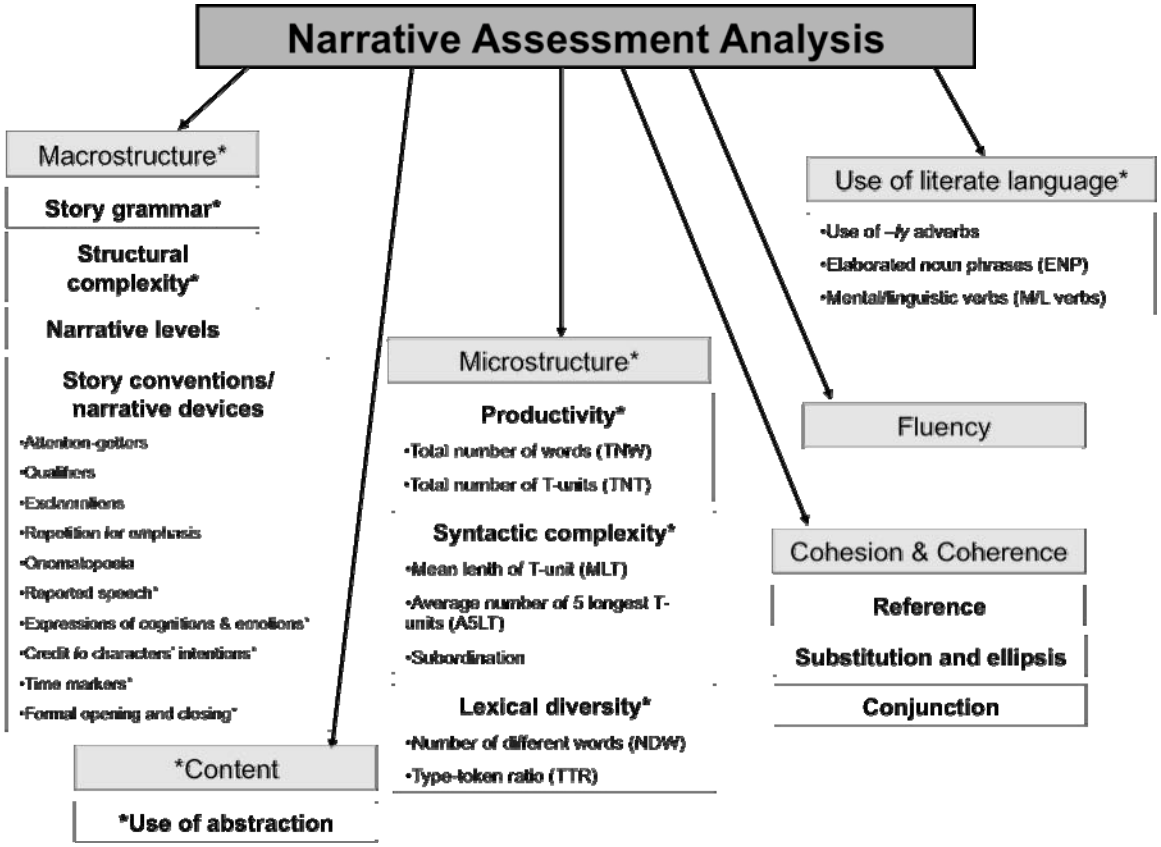

Figure 2.1 Different narrative measurements identified in the literature. The (*) indicates a measurements selected for the current study.

2.3.3.1 Macrostructure

The macrostructure (also referred to as the global structure of a narrative) refers to the "narrator's ability to construct a hierarchical representation of the main story elements" (Norbury & Bishop, 2003, p. 288). Macrostructure is usually described in terms of the use of story grammars, story structure and narrative levels.

Rollins et al. (2000) suggest coding narratives on the basis of descriptions by Peterson and McCabe (1994) and this include: orientation, action, evaluation, resolution and codas before scoring them, however, it is not uncommon to code macrostructure directly to utterances.

i Story grammars

The story grammar schema provides children with a means of understanding and predicting the structure and function of story parts in relation to the overall structure of the story.

A story consists of a setting plus the episode structure (Johnson, 1982). Trabbasso and Stein (1994, cited in Norbury & Bishop, 2003) categorised the episode structure into: information on the setting of the story, an initiating event (signalling a problem to be solved), an internal response of the character to the initiating events, an explicit goal, attempt to achieve the goal and the outcome to the narrative, based on the work by Roth and Spekman (1986) on story grammars. The complete list of story grammars is summarised in table 2.3.

Table 2.3
Story grammar categories and definitions

Unit	Definition
Story	Setting + episode structure
Setting	Introduce main characters, the protagonist, and the spatio-temporal context.
Episode	Initiating event + internal response + plan + attempt + consequence + reaction
Initiating event	The occurrence that influences the main character to action
Internal response	Indicates the thought, feeling of the protagonist in response to the initiation event; may include an interpretation of the event, formulation of a goal and serves to motivate action
Plan	Indicates the intended action of the protagonist (the announcement of the intended action)
Attempt	Indicates the overt actions of the protagonist in pursuit of the goal
Consequence	Indicates the attainment or non-attainment of the goal, or other events that are the result of attempts
Reaction	Included any emotional or evaluative response by the protagonist to the preceding chain of events.

Based on Stein and Glenn (1979) summarised by Griffith, Ripich and Dastoli (1987, p. 541)

Children's narratives follow a developmental sequence and the structural complexity of their narratives increases with age (Page & Steward, 1985; Ripich & Griffin, 1988; Price et al., 2006). This will be described in section ii that deals with structural complexity.

The use of story grammar categories have been found to be sensitive in distinguishing between different populations with communication impairments (Merrit & Liles, 1987; Botting, 2002), but Griffith et al. (1986) and Pearce et al. (2003) disagree. Weaver and Dickinson (1982) further found that the recall of story grammar did not distinguish proficient from poor readers.

ii Structural complexity

As mentioned in the section on story grammars, the complexity of the narrative structure increases with age in predictable ways.

Glenn and Stein (1980 as cited in Hedberg & Stoel-Gammon, 1986) have proposed a developmental sequence for the acquisition of story structures. Seven levels, varying in complexity from simpler to more complex, are described.

1. Descriptive sequence (descriptions of characters, surroundings and actions in largely unconnected sentences without chronological or causal relationships).
2. Action sequence (has chronological order for the actions but no causal relations).
3. Reactive sequence (certain changes automatically cause other changes, no goal-directed behaviours or planning is evident).
4. Abbreviated episode (contains event statement and consequence or internal response and consequence; the goal is not always stated explicitly, but understood).
5. Complete episode (an entire goal oriented behavioural sequence is described; a consequence statement is required as well as two of the following: initiating event, internal response or action).
6. Complex episode (elaboration of complete episodes comprising of embedded episodes or multiple plans activated to attain a goal) and
7. Interactive episodes (two characters with separate goals and actions influencing each other's actions).

Westby (2005) compiled a binary decision tree to determine the structural complexity level of narratives by establishing whether children could provide complete episodes in their retell narratives as opposed to abbreviated episodes or sequences. Levels were mainly based on the definitions of Glenn and Stein (1980) as described above. The decision tree is depicted in figure 2.2.

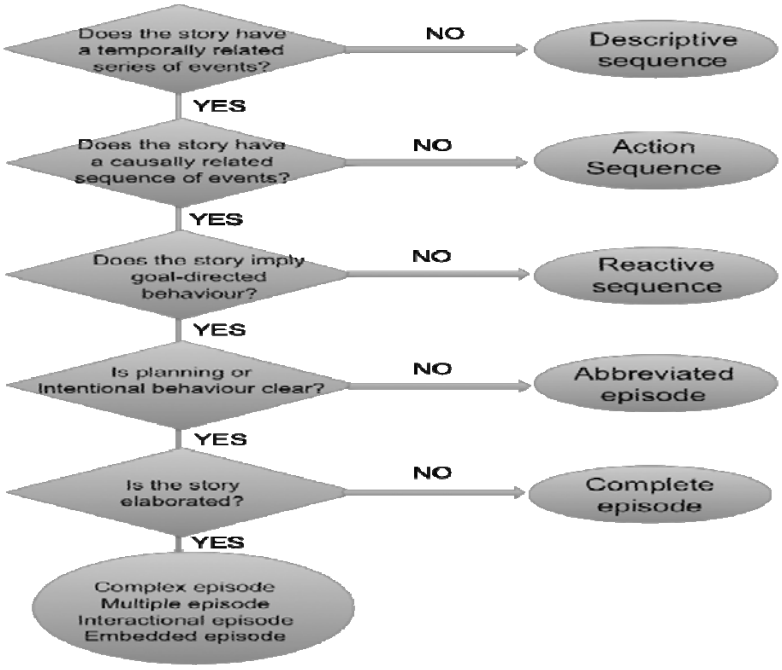

Figure 2.2 Story grammar decision tree (Westby, 2005, p. 181)

Rollins et al. (2000) suggest a culturally sensitive assessment for narratives in children, based on their normative data published in 1984 and described in table 2.1. They argue that although other cultures do not necessarily produce a classic highpoint narrative, the literature suggests that this approach still has something to offer. Their proposed decision tree is depicted in figure 2.3.

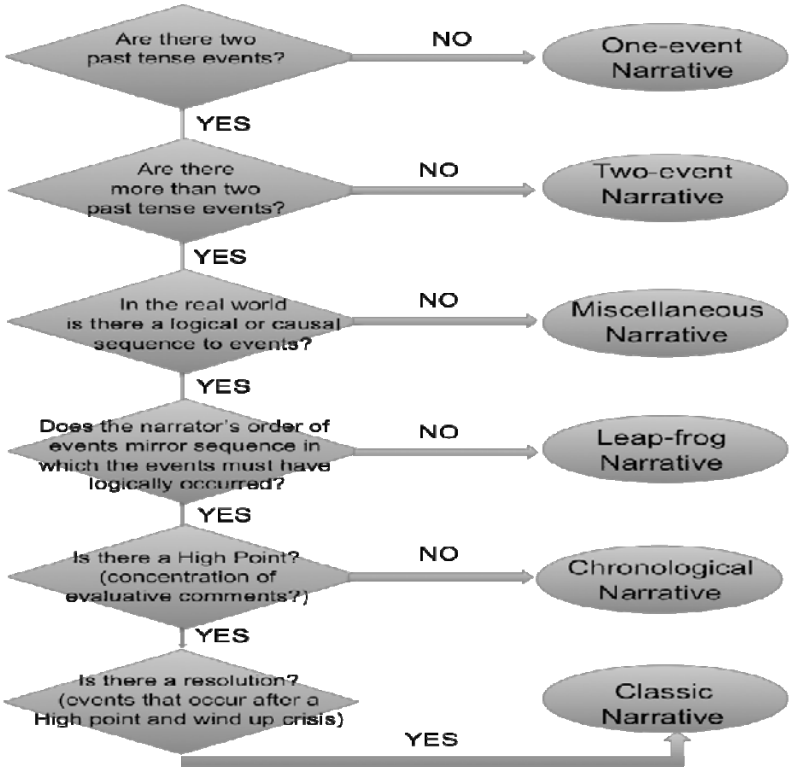

Figure 2.3 A culturally sensitive assessment of narratives skills in children based on Rollins, McCabe and Bliss (2000, p. 227).

Liles (1987) found that the frequency of complete episodes, produced both in the narratives of ND children and those with SLI, increases with age. It was noted that children whose language development is within normal limits (compared to SLI), changed the number of complete episodes as a function of the listeners' shared information.

iii Narrative levels

Story grammar analysis overlaps with narrative levels and is characterised by a formal set of rules describing stories. This provides a much broader range of categories for analysis. Hedberg & Stoel-Gammon (1986) suggest that the use of narrative levels seems to be most appropriate for the initial analysis of story construction where clients have limited verbal abilities.

Applebee (1977 as cited in Hedberg & Stoel-Gammon 1986), described six basic types of organisation that can be observed as a child develops skills in the construction of a story. These are described in table 2.2 in the section on normal development of narrative skills.

From the literature it is clear that the highest narrative level achieved is a sensitive identifier for language development and therefore SLI in children (Paul et al., 1996).

iv Story conventions or narrative devices

A narrative device is a technique that shapes the narrative to produce an effect on the reader/listener. Owens (2010) describes three types of expressive elaboration techniques: appendage (used to alert the listener that a story is being told or has ended), orientations (setting statements, consisting of names, relations and personality attributes) and evaluation (describing how narrative and character perspectives are delivered). Rollins et al. (2000) identified a total of 21 types of evaluation in 4-9 year old white English speaking children, which will not be discussed in detail.

Hemphill et al. (1991) specified 12 narrative devices which could be coded from generated narratives elicited from a wordless picture book. These include: attention-getters, qualifiers, exclamations, repetition for emphasis, onomatopoeia, reported speech, expressions of characters' cognitions, emotions and intentions, time markers and formal opening and closing statements. Note that for the purpose of this study some of these measurements will be covered under different headings, including reported speech and time markers (scored under abstractions) and expressions of characters' cognitions and emotions (scored under mental/linguistic verbs in literate language use).

By age 9, ND children should exhibit some expressive elaboration in their narratives. Evaluations are most frequently used and increase with age, orientations also increase with age and the use of appendage, although it is least frequently used, also increases with age (Owens, 2010). Developmental differences have been identified in terms of the use of formal and opening statements. By second grade children may use not only beginning and ending markers, but also evaluative markers such as "that was a good one" (Hemphill et al., 1991).

In their study, in which they compared the narratives of ND children with that of children with mental impairment, Hemphill et al. (1991) found that the use of narrative devices was not a sensitive measure to distinguish between the groups. Reported speech was however found to be significantly sensitive to distinguish between the narratives of ND children and those with SLI (Kaderavek & Sulzby, 2000).

Macrostructural measures selected for the purpose of this study include: story grammars, story structure and the story conventions using formal opening and closing statements.

2.3.3.2 Microstructure

The microstructure (also referred to as local structure of the narrative) analyses the narrative at a linguistic level (McCabe & Rollins, 1994).

When analysing narratives, researchers usually start by identifying communication units and measurement are then based on these units. A T-unit (minimal terminal unit) is defined as a unit of discourse, capable of functioning as a sentence (Hunt, 1965 as cited in Westby, 1991).

Microstructure can be judged in terms of productivity (including the total number of words, and total number of T-units used), syntactic complexity (mean length of utterance or T-unit, average length of the five longest T-units and subordination) and lexical diversity used within the narrative.

i Productivity

Productivity refers to story length. The total number of words (TNW) and total number of T-units (TNT) are used to determine the amount of language produced in narratives.

Clear developmental patterns in narrative length have been described with narratives of very young children showing shorter story lengths (Botting, 2002) and narrative length increasing up to the age of 9 (Scott & Stokes, 1995; Leadholm & Miller, 1995, cited in Botting, 2002) mainly due to an increase in complexity.

Measures of productivity have been described to distinguish between children with ND language and those with SLI. Narratives of children with language impairment are often shorter and generally resemble the narratives of younger children (Merrit & Liles, 1987; Kaderavek & Sulzby, 2000; Scott & Windsor, 2000; Newman & McGregor, 2006).

ii Syntactic complexity

Syntactic complexity develops at the clause level by coordination or subordination and is marked by increased sentence length (Scott & Stokes, 1995; Gummersall & Strong, 1999). It is therefore clear that it is closely related to the development of narratives with age both in ND children (Kemper & Edwards, 1986; Justice et al., 2006) and children with SLI (Griffith et al.,1986).

The use of complexity measures in narratives has found to be sensitive in distinguishing between children with communication impairments and their peers (Botting, 2002; Norbury & Bishop 2003).

Aspects of narratives commonly used as a measurement for syntactic complexity include: mean

length of T-unit (MLT) or mean length of utterance (MLU), average length of the five longest T-units (A5LT) and the use of subordination.

Mean length of utterance (MLU) has been described as a sensitive index for the developmental level of language in typically developing children, increasing steadily through to the teenage years as it is correlated with clausal development (Price et al., 2006). Owens (2010) suggests that an average of up to 4.0 MLU is considered a good measure of language complexity, as there is less variability below this average. This is usually reached by the age of 4 in (ND) children, but continues to increase with age. However, significant variability has been found in terms of MLU in ND children and this phenomenon is described as very typical in early language development (Dethorne, Johnson & Loeb, 2005).

MLU has also been advocated as a useful measure for diagnosing language impairments and monitoring treatment progress (Botting, 2002; Norbury & Bishop 2003), however the significant variation found in the utterance lengths of ND children (Scott & Stokes, 1995) makes this assumption questionable.

There have been many discussions on the usefulness of MLU as a diagnostic measure as both number of different words (NDW) and tense accuracy accounts for a significant amount of variance in MLU. The question is asked: *What does MLU actually measure?* Strong correlations have been found between MLU and NDW (Dethorne et al., 2005). It was suggested that MLU is associated with individual measures, both in the semantics and morphosyntax domains, with its association to NDW being particularly strong. Therefore MLU is better viewed as a global measure of expressive language ability and that it is probably affected by non-linguistic factors related to the measurement of context of language sampling.

Bishop (2004 as cited in Bishop & Donlan, 2005) stated that research findings suggest that MLU in words (MLT) and MLU in morphemes are so highly inter-correlated as to be equivalent. However, Nippold (1993, cited in Owens 2010) suggested that the ***mean length of T-unit (MLT)*** is more sensitive than MLU to the types of language differences seen after age 5, such as phrasal embedding and various types of subordinate clauses. However, he warns that T-unit values can be misleading, because complexity and length are not directly related. A phrase may for example be used in place of subordinate clauses to support conciseness, suggesting greater syntactic sophistication.

Scott and Stokes (1995) further found that both MLU and MLT are easily affected by genre and mode.

Subordination is an indication of increased syntactic complexity by using embedding and conjunctions (Scott, 1988b). The extent to which utterances contain subordinate clauses is referred to as *clause density* in the literature and is reported as a calculated ratio (Scott & Stokes, 1995). The way children link parts using conjunctions may reflect their underlying episodic organisations (Owens, 2010).

Braunwald (1985) suggests that the emergence of connectives indicate and contribute to the gradual interrelationship among language, thought and intentionality. It can be assumed that subsequent to increased knowledge and use of connectives, subordination will increase with age and this has been confirmed in the literature (Scott & Stokes, 1995; Greenhalgh & Strong, 2001; Owens, 2010). It is typically not until the elementary school years that complex syntactic structures, including a variety of connectives, emerge (Scott, 1984; Braunwald, 1985; Ripich & Griffith, 1988; Kemper & Edwards, 1986; Peterson & McCabe, 1991). In late elementary years, adverbial clauses of time (*when*) and reason (*because*) predominate, followed by the use of nominal clauses (including *that* and *wh*-nominals) (Gummersall & Strong, 1999). Subordination expands to include consequence (*therefore*), concession (*though*, *even*, *if*, *unless*) and manner (*as*). Embedding of elements also begins to occur and by the age of 9, Loban (1976, cited in Gummersall & Strong, 1999) reports that approximately 20-30% of sentences spoken contain a subordinate clause.

Peterson and McCabe (1991) found that although children produce more connectives with age, the semantic relationships expressed are invariant and age changes were found to be minimal.

The use of subordination has been found to be significantly sensitive in distinguishing between the narratives of different clinical populations (Liles, 1987; Greenhalgh & Strong, 2001), however Roth and Spekman (1989) found similar patterns in terms of syntactic proficiency between children with SLI and their ND peers.

In selecting complexity measures for the study, the main criteria were definability and frequency. As utterances were segmented in T-units, the mean length of T-unit and the mean length of the five longest T-units were selected as complexity measures. Although subordination has been described as a measure of literate language use in the literature, it was also included under syntactic complexity due to the close correlation between increased complexity and the use of coordination and subordination.

iii Lexical diversity

The ***number of different words*** used reflects a child's expressive vocabulary size and semantic proficiency.

Lexical diversity is determined by measuring the number of different words produced in each narrative (NDW). This can also be expressed as a ***Type-Token Ratio (TTR)***, which is the ratio of the NDW to the total number of words (TNW) in a language sample (Owens, 2010), a calculation to correct for variance in sample size.

According to Watkins et al. (1995) NDW is a more sensitive and informative measurement for lexical diversity. NDW is strongly correlated with age (Miller, 1991 as cited in Owens, 2010; Leadholm & Miller, 1995 cited in Botting, 2002). Miller 2001 (cited in Botting, 2002) described clear developmental patterns in the narratives of very young children, showing shorter story lengths and fewer NDW. The lack of age effect found by Greenhalgh and Strong (2001) was explained by the type of samples obtained imposing a ceiling effect. Studies have found that NDW scores statistically differentiated the groups ND language and SLI (Watkins et al., 1995), but these findings were contradicted by other research findings (Scott & Windsor, 2000; Greenhalgh & Strong 2001).

There is limited evidence of TTR as an index of language development or impairment. TTR has been found to be highly influenced by sample size (Scott & Windsor, 2000) and was found to mask important linguistic differences between ND and SLI children (Watkins et al., 1995). TTR was found to change little with age and range from 0.42 - 0.5 for 2 to 9 year olds (Klee, 1992 cited in Owens 2010). Owens (2010) suggests that values greater than 0.5 suggest greater variability and flexibility in their language and that significantly lower values for NDW might suggest retrieval problems or poor vocabulary. Watkins et al. (1995) emphasised that language samples of more than 100 utterances should be used when calculating TTR as no significant differences in terms of TTR of the narratives of ND and SLI children where found when using less than 100 utterances. Both measurements are still being used and normative data for both NDW and TTR is available (Owens, 2010). However, the wide variability within age groups in terms of language sample size raises questions about the validity and reliability of normative data pertaining to these two measures (Klop, 2011).

Justice et al. (2006) found that narrative performance data (n=250) showed a developmental increase in the means of nearly all microstructural measures through age 10, followed by a drop in performance for 11 and 12 year olds. It was suggested that children have reduced interest in producing elaborated narratives at this age.

Microstructural measures, for the purpose of this study, include productivity (total number of words and total number of T-units), syntactic complexity (mean length of utterance, average length of the 5 longest T-units and subordination) and lexical diversity (total number of different words and type token ratio).

2.3.3.3 Use of literate language features

Literacy is defined by Benson (2009) "as the ability to read and write" and is seen as "the product of cognitive, linguistic, social development and literacy experiences" (p. 176). It is contrasted with oral language, the ability to listen and speak. Oral language is informal and concrete, accented by prosodic and non-linguistic information, but literacy demands a denser, more specified lexicon and more complex syntactic forms, unsupported by non-linguistic information (Westby, 1991). This denser, more specified lexicon and complex syntax is known as literate language (Benson, 2009).

An oral language style may be broadly defined as *learning to talk*, that includes learning phonology, morphology, syntax, semantics and pragmatics; whereas a literate language style may be defined as *talking to learn;* that is using language to monitor and reflect on experience and to reason about, plan and predict experiences (Westby, 1991). Literate language is dependent on children's literacy achievement or experiences and therefore the assessment of literate language is essential to identifying children whose language limitations may hinder their academic and communication success (Greenhalgh & Strong, 2001).

There is no linguistic analysis system designed to identify a literate language style. Researchers reported on four aspects of children's language found to be related to literate language style and these are likely sensitive to developmental growth. These aspects are described in Table 2.4.

Westby (1991) states that, if these aspects of language are noted in the T-unit analysis, one could get a sense of the degree to which the child is using a literate language style. Investigating the use of literate language features can further guide intervention, where measures of productivity or lexical diversity cannot.

Table 2.4
Aspects of language related to literate language style

Literate language feature	Description
*Conjunctions	Both subordinating and coordinating conjunctions are used to organise narratives, clarify event and object relationships and to make meanings explicit. These occur in low frequency in the language of school-age children (Scott, 1988; Benson, 2009).
Adverbs	Adverbs often code aspects of tone, attitude and manner that in oral language would be coded through stress and intonation (Greenhalgh & Strong, 2001; Benson, 2009).
Elaboration of noun phrases (ENP)	ENPs contribute to the explicitness of character and object descriptions in narration (Pellegrini, 1985). Noun phrases can be elaborated by using noun modifiers and qualifiers (Greenhalgh & Strong, 2001)
Mental and linguistic verbs	These are verbs that denote cognitive and linguistic processes (e.g. *think, say, know, promise, forget, report*). By using mental and linguistic verbs in telling or retelling a story, children communicate the story's events in a more explicit (or literate) manner and show awareness of the characters' mental states and their verbal abilities (Greenhalgh & Strong, 2001).

*Note: *For the purpose of this study, the use of conjunctions has been discussed under microstructural measures (structural complexity: subordination)*

i Use of adverbs

Adverbs often codes aspects of tone, attitude and manner that in oral language would be coded through stress and intonation. It therefore contribute to literate language and is used for cohesion by conveying the speaker's attitude towards the topic (Owens, 2010). Adverbs often indicate time (*suddenly*), manner (*angrily*) and degree (*extremely*) (Westby, 2005) and are easily recognisable by the *–ly* suffix. Greenhalgh and Strong (2001) suggest counting only *–ly* verbs in measuring the use of disjunct adverbs.

Adverbs surface rather late in childhood (emerging at about the age of 6) and develop slowly into adulthood (Scott, 1988b). Adverbs are rarely used in all ages (Scott, 1984; Greenhalgh & Strong, 2001).

Greenhalgh and Strong (2001) found that the use of *–ly* adverbs did not identify children with SLI from those with typically developing language, but explained that inspection of individual scores revealed that adverbs were rarely used in either of the groups and the stimulus story did not adequately model the use of adverbs. The type of narrative samples in the study, imposing ceiling effects to both groups, was offered to explain the lack of an age effect.

ii Use of elaborated noun phrase (ENP)

Noun elaboration can occur in the form of modifiers (preceding the noun), qualifiers (such as prepositional phrases, following the noun) and relative clauses and is used to describe nouns or pronouns, contributing to the descriptiveness of narratives (Westby, 1991). Greenhalgh and Strong (2001) defined an elaborated noun phrase as a noun phrase with more than two modifiers or qualifiers.

The development or elaboration of noun phrases takes most normally developing children many years and continues into adolescence, with most 5 year olds using no more than one modifier with each noun. Most elaborated forms are usually produced in written language (Owens, 2010). The use of ENP has been found useful in diagnosing children with SLI (Greenhalgh & Strong, 2001).

iii Use of mental and linguistic verbs

The use of mental and linguistic verbs reflects awareness of goals and intentions of characters and contributes to the construction of coherent narrative structures (Greenhalgh & Strong, 2001; Westby, 1991). These verbs are also referred to as "evaluations" described by Bamberg and Damran-Fye (1991), "narrative devices" described by Hemphill et al. (1991) and "frames of mind" by Bamberg and Damrad-Frye (1991).

Findings on the use of evaluations in narratives of children suggest that children as young as 5 use mental and linguistic verbs to link sequential events (Peterson & McCabe, 1983 cited in Bliss et al., 1998). More importantly, they contribute to coherence by adding extra meaning to individual events and actions. Bamberg and Damrad-Frye (1990) found that, although there was essentially no difference in the frequency of evaluative devices between a group of 5 year olds (n=12) and 9 year olds (n=12), the type of evaluative comments used did change with age. They commented that the ability to provide evaluative comments is based on a number of other complex linguistic competencies, namely formation of event schemas and formation of *theory of mind*. Bishop and Donlan (2005) relate the development of syntax to the use of *mental statements* by declaring: “Syntax shapes thought” (p. 26). In this they support the increased use of mental and linguistic verbs with age (or the development of syntax) observed in research (Kemper & Edwards, 1986).

Several studies (Botting, 2002; Johnston et al, 2001 as cited in Bishop & Donlan, 2005) have found that children with SLI use less mental and linguistic verbs than their ND peers. Therefore syntactic limitations may constrain children’s ability to think about and use mental states. In contrast, Greenhalgh and Strong (2001) found that ND children rarely used M/L verbs and therefore it is not sensitive to identifying SLI.

Literate language measures, selected for the purpose of this study, include the use of adverbs, elaborated noun phrases and mental and linguistic verbs.

2.3.3.4 Use of evaluations

Evaluative comments function as links between sequential events and they add to the global hierarchical perspective from which narratives gain coherence.

Bamberg and Damrad-Frye (1991) described the following types of evaluative comments: frames of mind (mental and emotional states of the character, described under literate language features in section 2.3.3.3), direct or indirect character of speech (covered under abstraction in section 2.3.3.5 for the purpose of this study), hedges (indicating a level of uncertainty about the story), negative comments (to indicate contradictions to the characters expectations) and causal connectives (indicating integration of information to explain an emotion or behaviour in the story). They found that children as young as 5 years old use evaluative devices in third person narratives and the frequency of use increase with age, with 9 year olds and adults preferring “frames of mind”.

Bamberg and Damrad-Frye (1991) investigated the changing functions of evaluative devices in children’s narratives. Quantitative comparisons showed that adults used evaluations (i.e.

references to emotions, character speech, “hedges”, negative qualifiers and causal connectors) three times more than 5 year olds and 2½ times more than 9 year olds. Adults used references to “frames of mind” and “hedges” more than children. Five year olds used equal numbers of the different evaluation types, but 9 year olds and adults used “frames of mind” significantly more.

2.3.3.5 Content

It is assumed that as language skills increase, the ability to move from more concrete to abstract language use also develops. The *Test for Oral Language Production* (TOLP) (Vorster, 1980) suggests the measurement of three important content aspects within narratives produced by children. Labels, picture facts and abstractions are identified within the T-units and an abstract-concreteness index is calculated. Refer to Appendix 9 for more details and examples regarding these aspects. Vorster (1980) has found the scale highly growth sensitive.

The abstract-concrete ratio is included in the current study.

2.3.3.6 Cohesion

Structural text cohesion can be described in terms of various kinds of meaning relations, which are presented as cohesive “ties” linking sentences (Liles, 1985). There are 5 major categories of meaning relations that can integrate a particular text structurally: ellipsis, substitution, lexical, conjunction and literal cohesion (Strong & Shaver, 1991). The different areas will not be discussed in detail, but note that for the purpose of this study, conjunction resorts under the section subordination and literal cohesion, under use of literate language features.

Cohesion is different in children with ND language and SLI in terms of the facilitation of organisation, adequacy and story comprehension (Liles, 1985; Strong & Shaver, 1991). Griffith et al. (1986) found differences in terms of reference and conjunctions, but not ellipsis, in the narratives by ND and SLI children.

2.3.4 Interpreting results

One of the biggest challenges is making the decision as to whether a story is “just different” or “impaired”. This question often arises when studying diverse cultural or linguistic groups and will definitely impact on the South African context (Penn, 2002).

Important problems posed by the story genre, eliciting procedures and scoring systems have been discussed. The effects of diverse linguistic or cultural backgrounds have been reported to place linguistic and social constraints on storytelling in everyday life. They impact on both the expectations posed to the storytellers and listeners (Polanyi, 1982; Shiro, 2003). In their study

on assessing the narratives of children from diverse cultural or linguistic groups, Gutierrez-Clellen and Quinn (1993) emphasised the differences in terms of narrative information, organisation, world knowledge and experience, the effect of story elicitation tasks, interaction styles and the use of paralinguistic conventions. Their findings suggested that an analysis of narratives based on discrete informational units or story constituents may not be a useful indicator of narrative ability across cultural or linguistic groups. A dynamic assessment approach was recommended as a non-discriminatory alternative to traditional methods of narrative assessment (Gutierrez-Clellen & Quinn, 1993; Peña et al., 2006).

Another very problematic issue in narrative analysis is inter-judge reliability. The speaker has a wide range of acceptable choices. The most basic cause for disagreement across examiners is that they are attempting to infer mental operations from the subjects' verbal reports. Unless the narrative is perfectly coherent, with the speakers' intentions explicitly stated, examiners are apt to differ and reliability suffers. Without shared information between the speaker and the examiner, as in a target response, reliability suffers to the point that the results may be uninterruptible. The issue becomes critical in the analysis of narratives produced by children with language disorders because the more incoherent the narrative, the more apparent the problem of reliability becomes. The use of picture stimuli for eliciting the narratives in the current study was therefore considered a good option to ensure shared information and increased inter-judge reliability.

2.4 NARRATIVES SKILLS IN DIFFERENT CLINICAL POPULATIONS

As discussed in section 2.3.3 narratives can be used to distinguish children with communication difficulties from their peers (Garnett, 1986; Griffith et al., 1987).

The narratives of children with ND language have been described as demonstrating topic maintenance with no addition of irrelevant material. Events are sequenced chronologically with a clear, complete description of critical information. Used pronouns are clearly specified, ensuring clear understanding of the meaning in the story. Conjunctions are used with coordination and temporal meanings and these appropriately expressed causality. A mild interruption in terms of fluency does not interfere with the coherence of the message (Bliss et al., 1998).

2.4.1 Narratives of children with specific language learning impairments

"Specific language impairment (SLI) is a significant impairment in the spoken language ability of children in the absence of identifiable causal factors or obvious accompanying factors such as neurological deficits, mental challenges, hearing disabilities, and emotional or behavioural

problems" (Leonard 1998, p. vi).

Wagner et al. (2000) found differences in the displayed language of children diagnosed with SLI (n = 28, aged 4 years 11 months – 5 years 9 months), when comparing their discourse to narration. More complex verb forms were used in conversation and narratives revealed longer MLU and more use of grammatical morphemes and phrasal expansions.

Children with language disorders or learning disabilities often have difficulty creating and interpreting narratives. Their narratives are reportedly similar to those generated by younger normally developing children (Van der Lely, 1997; Price et al., 2006).

Reports on the macrostructure of narratives of with SLI are somewhat contradictory. Merrit and Liles (1987) found that older children with SLI (n = 20, 9 years – 11 years, 4 months) produce fewer story grammar elements and at a less mature narrative level than their ND peers (Paul et al., 1996), however Liles et al. (1995) in their review of the literature and Norbury and Bishop, (2003) in their study of 17 children with SLI (aged 6 – 9 years old) found that the macrostructure did not distinguish children with SLI from their ND peers. Hemphill et al. (1991) further found that there were no significant difference between the groups in terms of the story conventions, formal opening and closing statements used.

In terms of microstructure, given their language limitations, children with SLI are known to tell shorter stories than their peers (Scott & Windson, 2000; Botting, 2002; Bishop & Donlan, 2005; Newman & McGregor, 2006). However, Liles (1987) and Norbury and Bishop (2003) found that the productivity of the stories told by children with SLI were similar to that of their ND peers, but they were less complex with more tense errors (Botting, 2002). Cohesion was found to be better in the narratives of children with ND language (Liles, 1985; Roth & Spekman, 1986; Bliss et al., 1998; Scott & Windsor, 2000; Norbury & Bishop, 2003).

Children who talk about cognitive states tend to use more complex clause structures. Bishop and Donlan (2005), in a study including 63 children with SLI and a control group of 32 (aged 7 – 9 years 11 months), found that children with SLI were recalling significantly less story material than their ND peers. Description and recall of story ideas were related to the use of complex syntax and failure to use cognitive state terms predicted poor recall. The use of devices which denote causality (including complement clauses, subordinate and adverbial clauses and cognitive state terms), were associated with better narrative recall. Norbury and Bishop (2003) however found no significant group difference in terms of the use of frames of mind between ND children and those with SLI in a similar age group (n = 17).

Van der Lely (1997) investigated differences in the use of referential expressions (e.g. pronouns) by children with ND language and twelve of their SLI peers (aged 10 years 2 months – 13 years 11 months). Findings revealed relatively mature linguistic development in the use of referential expressions to produce a cohesive narrative in the SLI group. They did however use significantly less pronouns than the control group with ND language.

Paul and Smith (1993) and Paul (1996) compared the retell narrative abilities of 3 subgroups of 4 year olds using the Bus Story language test (Renfrew, 1977). The groups consisted of children with normal language development (NDL), those with a history of late language development, but with adequate sentence structure production at the time of assessment (the so called “late bloomers”) and those with persistent language deficits (SLI). There were significant differences between the NDL and SLI groups in terms of all variables investigated. This included an information score, syntactic production (MLU per T-unit), cohesive adequacy and lexical diversity (NDW). The late bloomers did not significantly differ from either of these groups, indicating that they were performing somewhere in the middle of the two groups. Poor narrative skills in the language-delayed group were not just an outcome due to poor syntax and morphology, but involved difficulties beyond the production of grammatical sentences. The question why the late bloomers did not significantly differ from the other two groups was answered by suggesting that they might still be “catching up”.

2.4.2 Narratives of children with pragmatic language impairment (PLI) and/or autism

There is still disagreement in the literature on whether semantic-pragmatic language impairment should by defined under autism, or as a separate communication problem. The unresolved question is whether children with PLI produce narratives resembling those of children with SLI or with autism.

Studies of the narrative skills of children with autism have resulted in conflicting findings (refer to a review in Norbury, 2003). According to Loveland et al. (1990 as cited in Norbury, 2003), children with autism tend to include more bizarre or irrelevant information in their stories than their peers with normal developing language or specific language impairment.

In their review of the literature Davis et al. (2004) found that children with autism had very specific difficulties with narrative formation. The affect is often missing or inappropriate information and children with autism are often not taking their audience and references to causality, into account. The authors hypothesised that the structure of the narrative is fundamental to the perception, creation and communication of meaning in social interaction.

Norbury and Bishop (2003) found the macrostructure did not distinguish groups with PLI and their controls, but in terms of microstructure, although productivity was similar, complexity was simpler. Children with PLI revealed competence in linguistic knowledge, but showed tense marking errors (Botting, 2002). Studies further showed that children with autism and those with developmental delay, tended to label emotions and explain actions without referring to the internal state of characters (Norbury & Bishop, 2003).

2.4.3 Narratives of children with hearing impairment

In the past, research on narratives of profoundly deaf children has mainly focussed on the structure of written narratives produced by school-aged children. This was most probably due to the fact that speech intelligibility of this group is often poor, making analysis of oral narrative samples cumbersome and unreliable.

Perfetti and Sandak, (2000 cited in Geers, 2003) argued that the low literacy levels amongst students with severe to profound hearing impairment are in part due to the discrepancy between their incomplete spoken language system and the demands of reading on a speech based system (bottom up model). In contrast to that Ewoldt (1993) in the same article, proposed that a top down model of reading comprehension is possible for deaf readers. In following this model, they would bypass the auditory-based syntactic skills and phonological decoding strategies, and process print on the basis of simply memorising visual representations and associating them with words from the existing vocabulary base.

Marschark, Mourandian and Halas (1994) structurally analysed the written as well as signed or oral or a combination of signed and oral stories of deaf school-aged children. In terms of causal cohesion the groups revealed remarkably similar competencies. Grammatical characteristics of writing in contrast revealed differences in use of modifiers, prepositions, vocabulary diversity and sentence length and complexity. Results indicated that deaf children make use of discourse rules in narrative production insofar as they can make use of goal-action-outcome structures in telling stories, but that these may be obscured by influences of writing.

With the introduction of cochlear implants (CI) and the positive outcomes in terms of speech perception and production skills, more researchers are including oral narrative and reading skills to measure benefit of cochlear implantation.

Crosson and Geers (2000) hypothesised that children with improved speech perception resulting from cochlear implantation, and who depend on oral communication would produce narratives more closely approaching those of their normal hearing peers. The improved narrative abilities

would then be associated with higher reading levels. Their findings on the narrative ability of 87 CI users with at least 4 years experience with the CI confirmed this assumption. Children with better speech perception scores produced narratives that were more similar to those of their normal hearing peers. A significant correlation was found between the narrative ability, speech perception, syntax and reading scores. Although their use of subordinate conjunctions was not as developed as their normal hearing peers, it was significantly above that of deaf children who received less speech perception benefit after a similar period of cochlear implant experience (Crosson & Geers, 2001).

Nikolopoulos et al. (2003) ran a prospective and longitudinal study assessing 35 deaf children before cochlear implantation and 1 year and 2 years post operative. No control group was used. Results showed a significant improvement in terms of story grammar categories over time. There was also a shift towards the spoken mode of communication after cochlear implantation.

Children with CI performed within 1 standard deviation (SD) of normal hearing age-matched children on measure of language comprehension, reading comprehension and writing accuracy in the study published by Spencer, et al (2003). They did, however, produce fewer words on written narrative tasks, with no significant difference between groups with respect to total words per clause. Strong correlations were found between language and reading performance as well as language performance and mean length of written narratives for the implanted group. CI users scored poorer in terms of accurate use of grammatical structures, such as conjunctions and verb forms, and in formulating written and oral sentences. Their performances in writing productivity, utterance complexity and usage errors were similar to their performances in reading comprehension measures. Their writing skills were immature in comparison to the control group, but not significantly different. A positive correlation was found between reading and composite language scores. The authors concluded that paediatric cochlear implant users should be able to meet ordinary classroom expectations.

In summary, professionals agree that it is more appropriate to assess the functional use of language when assessing children with special communication needs than to assess different aspects of language development separately. The assessment of narrative skills shifts the emphasis from sentence structures to the relationship between the structure and the meaning or function thereof.

In reviewing the literature the primary goal of researchers seems to focus on describing the developmental progression on specific components of narrative ability. The interest lies in using the narrative as an index of cognitive or social development or more specifically as a developmental index of some specific linguistic or communication (dis)ability.

A clear hierarchical level of narrative development as well as specific structural patterns (story grammars) in stories told by children has been identified in British and American English speaking children. There seems to be culturally specific rules, where the major character is motivated to achieve a goal by engaging in a range of actions. The assessment findings could be used to measure severity and type of language impairment and to monitor progress.

Narrative assessment has been found to correlate with later literacy skills and to be sensitive to the communication impairments of children with specific language impairment, language delay and those with autistic spectrum disorders. Links have been found to exist between preschool narrative abilities and the acquisition of literacy. By using narrative assessment we might be able to identify children at risk for language based reading problems earlier.

Although narrative assessment has become highly regarded, there is still no single assessment tool to use in the clinical setup. The complexity of narrative skills has been well described and it is therefore clear that normative data will need to be obtained.

2.5 THE NEED TO DEVELOP A PROTOCOL FOR THE ASSESSMENT OF NARRATIVES

Narrative skills have found to be a predictor of academic success with clear correlations to later reading and writing abilities in children (Roth et al., 1996; McCabe & Rollins, 1995). The quality of narratives and the language disorders displayed in specific clinical populations has also been correlated, making narratives a useful diagnostic tool (Kaderavek & Sulzby, 2000; Norbury & Bishop, 2003; Davis et al., 2004).

As speech and language therapists we have a role to play in terms of early diagnoses of language learning problems in different populations with potential communication difficulties. In using narratives, we may be able to identify children at risk for language based reading problems in the early phase of language acquisition and guide intervention. It could also be used to predict later academic outcomes and guide decisions regarding early recommendations in terms of appropriate school placement.

To be able to know what is atypical, one has to know what is normal. In reviewing the literature it became clear that there is currently no single assessment protocol available to get an overall view of the narrative skills of children. Available measurements only focus on specific areas of narrative skills and have found to be culturally restrictive. Commercially available assessments are often inappropriate because of the complex nature of narratives and the influence of socio-economic, linguistic and cultural factors (refer to section 2.3.1 for a review of current assessments available). Normative based assessment materials are very limited in South Africa.

There is therefore a need not only to develop appropriate assessment materials but also to obtain normative data for use in the South African context.

In developing a tool to analyse narratives, several challenges had to be faced. An elicitation procedure had to be chosen that provided the examiner with substantial knowledge of the target response to be able to do error analysis. Narrative length had to be controlled for as far as possible, as a too short narrative might provide a narrative vulnerable to the problem of reduced incidence of target responses due to the wide range of linguistic choices available to the speaker. In contrast, a narrative that it is very long and complex will become difficult to analyse.

Liles (1993) advocated story retelling to control for the above-mentioned factors. However, based on a review of the literature, the following guidelines were viewed to be most appropriate and useful in developing a narrative assessment tool:

- a generated, rather than retold story should be elicited (Merrit & Liles, 1998),
- presentation as a wordless picture book for better control of the elicited story (Hedberg & Stoel-Gammon, 1986; Botting, 2002),
- the book should be clearly illustrated with pictures presenting a story line that would be both familiar and culturally appropriate and
- enough stimulus pictures should be included to elicit a range of episodes and targeted structures.

Vorster (1980) adds that

- as many aspects of language behaviour as possible should be covered,
- unambiguously definable, preferable in accepted linguistic terms to ensure acceptable inter-scorer reliability,
- measurement should have the potential to be sensitive to grow with age and
- where possible have direct implications for therapy.

Narrative assessment provides a wealth of information about a child's linguistic, pragmatic and cognitive abilities and is far more entertaining than most standardised language tests. In order for a narrative assessment to be a useful strategy for diagnosing language-learning problems, one must be able to describe typical performance and understand normal variations within groups of children.

The main aim of the study was to investigate developmental patterns in the narratives of normally developing children between the ages of 5 years and 9 years and 6 months. It was assumed that there would be an increase in the complexity of narratives with age. A single

narrative assessment protocol was developed, covering a comprehensive variety of parameters to analyse generated stories elicited by means of a self-developed wordless picture book appropriate to the South African context.

3. RESEARCH DESIGN AND METHODOLGY

The main aim of the study was to investigate developmental patterns in the narratives of normally developing children between the ages of 5 years and 9 years 6 months. It was assumed that there would be an increase in the complexity of narratives with age. A single narrative assessment protocol, covering a range of important parameters included in a comprehensive analysis of the narrative skills of children was developed for this purpose.

This chapter presents the research design, participant selection, development of the narrative assessment protocol, data collection and procedures used.

3.1 RESEARCH DESIGN

A cross sectional research design was used to investigate the distribution of the selected narrative variables across three different age groups (Hedge, 2003). Participants were sourced from mainstream schools in a middle class residential area and included 62 typically developing children from three different age groups.

3.2 PARTICIPANTS

3.2.1 Selection procedure

Participants were recruited from two dual medium Primary schools and a Pre-primary school, situated in a middle class residential area in the northern suburbs of Cape Town. Formal written consent to undertake the research project was requested and granted by the Western Cape Educational Department (WCED) and the school principals of the identified schools (see Appendices 12 and 14).

Only normally developing children, in classes with English as medium of instruction, were considered for inclusion in the project. Participants with English and/or Afrikaans as home languages were not excluded because most South African children are considered to be bilingual. All potential participants within the specified age groups were identified from class lists in the different schools.

Three age groups were targeted to investigate narrative developmental patterns with age. A pre-primary group (aged between 5 and 6 years old) was targeted as they are generally expected to be able to produce well-formed narratives (Liles, 1993; Westby, 1991). A Grade 1 group (aged

between 6 and 7 years old) was targeted as it is expected that by the time children enter formal education, they start formulating ideal narrative structures (Liles, 1993; Owens, 2010). A Grade 3 group (aged between 8 years 6 months and 9 years 6 months) was also targeted as narratives continue to develop and by this age children are expected to have mastered basic literacy skills and narratives should be well developed (Peterson & McCabe, 1983; Merrit & Liles, 1987; Owens, 2010). A total of 127 children were identified based on their dates of birth sourced from class lists, and their parents were sent a research proposal and consent forms prior to the study (see Appendix 11).

Once permission to participate was granted, a standard screening questionnaire (see Appendix 1) was sent home for completion to screen for typically developing children with no history of cognitive, language, sensory, physical, emotional and/or other developmental problems. Unfortunately two questionnaires from the Grade R group, three from Grade 1 and two from Grade 3 were not returned. As the teachers of these children reported that there were no concerns, they were still included in the study. Responses to the initial selection process is summarised in table 3.1.

Table 3.1
Participant information

	Groups		
	Grade R (n=20) (5-6 years)	Grade 1 (n=20) (6-7 years)	Grade 3 (n=22) (8½ - 9½ years)
Total number of participants identified from class lists, based on age alone	41	45	41
Consent granted from parents and participants	22	23	24
Learners excluded			
No response to several requests for consent	16	19	10
Consent not granted	3	3	7
*Other factors	2	3	2
Total number of participants included	**20**	**20**	**22**
Male	10	12	10
Female	10	8	10
White	18	19	18
Coloured	2	1	4
Only English as home language	14	10	10
Exposed to Afrikaans and English at home	4	6	9
Only Afrikaans as home language	0	3	1
Home language not specified	2	1	2
Average age	5 years 6 months	6 years 7 months	9 years

Note. *This group of participants were excluded during or after the assessment process based on performance. Details are discussed in section 3.2.2

A total of seven of the originally identified participants were excluded from the study. To be included in the sample, learners had to be exposed to Afrikaans and/or English as home language. Three learners were excluded form the study as their home languages were respectively Korean, Arabic and isiXhosa.

A history of middle ear infections at a younger age was noted, but these children were retained as participants as long as their parents and teachers had no concerns regarding hearing or language at the time of the study. No formal hearing screening was performed.

3.2.2 Inclusion and exclusion criteria

Three formal standardised language assessments were completed (see section 3.3.1). In an attempt to ensure a heterogeneous participant sample, the researcher did not exclude children on the basis of formal language assessment results obtained. The results were merely used to describe and compare participant groups. However, learners with possible specific language impairment (SLI) were excluded. Decisions, as to the possible presence of SLI, were based on information obtained from the standard screening questionnaire completed by parents, discussions with teachers and whether or not a child was receiving language therapy. One learner in Grade R (participant A008) was excluded based on the fact that his teacher had major concerns regarding his scholastic progress and because he was receiving language therapy at the time.

Formal language assessment results suggested that the groups were very similar in terms of language development. Refer to table 3.2 for a description of formal language assessment results obtained.

Table 3.2
Formal language assessments: Summary of the mean scores, ranges and standard deviations per group for standard scores obtained.

Formal language assessment used	Groups								
	Gr R (n=20) (5.6-6 years)			Gr 1 (n=20) (6.5-7 years)			Gr 3 (n=22) (9-9.5 years)		
	Mean	Range	SD	Mean	Range	SD	Mean	Range	SD
TACL-R	108.25	74-149	16.25	101.45	83-117	9.78	89	76-106	8.48
PPVT-III	101.25	83-132	11.11	97.05	72-109	1.69	89.68	73-111	12.34
EVT	106.1	85-118	8.62	100.4	87-112	6.72	86.05	44-107	13.23

There were no significant differences in terms of any of the language standard scores between the Grade R and Grade 1 groups. ANOVA measures indicated that the Grade 3 group obtained significantly lower standard scores for the TACL-R, $F(2, 59) = 14.24$, $p < .01$, the PPVT, $F(2, 59) = 6.45$, $p < .01$ and the EVT, $F(2, 59) = 22.7$, $p < .01$ than the other two groups. Their standard scores for the three different tests were similar and still within the normal range for language development.

Two learners (participants A016 and B006) demonstrated poor motivation and cooperation during the storytelling task. After a discussion with their teachers it was decided that the narratives produced were not representative of their skills and they were excluded. Unfortunately one video recording had no sound and the data could not be used (participant B013).

In summary, a total of 62 normally developing children with Afrikaans and/or English as home language enrolled in a mainstream school in a middle class residential area in the northern suburbs of Cape Town were selected. All of the participants were enrolled in a classroom where English was the chosen language for instruction. Their home language was Afrikaans and/or English. Three different age groups were selected: a Pre-primary group, aged between 5 and 6 years old (n=20), a Grade 1 group, aged between 6 years and 7 years (n=20) and a Grade 3 group, aged between 8 years 6 months and 9 years 6 months (n=22).

3.3 MATERIAL AND INSTRUMENTATION

Materials and instruments used included the following:

3.3.1 Standardised language assessments

Three formal language assessments were performed in order to describe the three different age groups in terms of compatibility. The Test for Auditory Comprehension of Language-Revised (TACL-R) (Carrow-Woolfolk, 1985) focuses on receptive vocabulary and the understanding of grammatical morphemes and elaborated phrases and sentences. The Peabody Picture Vocabulary Test (PPVT-III) (Dunn & Dunn, 1981) and the Expressive Vocabulary Test (EVT) (Williams, 2007) were also administered.

3.3.2 Video camera

A Canon MV 790 digital video camera with a Rode VideoMic microphone was used to record the children's storytelling. Video recordings were stored on tape and transferred onto DVD to make transcriptions of narratives easier and to increase the reliability of the analysis.

3.3.3 Wordless picture book

An original story was written by the researcher and illustrated by a professional illustrator in consultation with the researcher (see Appendix 2 for pictorial content). The pictures portray a story line familiar to the South African context. The wordless picture book contains 14 colour pictures and was introduced to the participants in familiar book form.

Westby (1991) described the challenges in developing a narrative analyses tool. All of these factors were taken into consideration. The wordless picture book was chosen to provide the researcher with substantial knowledge as to the target response. The ability of a child to generate a narrative, without an adult model, probably provides a very realistic impression of his/her narrative skills. A story generation task was chosen as it has been described as a quick and useful way to assess the ability to recognise and comprehend schema knowledge within narratives (Westby, 2005). Merrit and Liles (1989) further suggest that it activate similar cognitive organisations of story formation than that of a story-retelling task.

The picture book was limited to 14 illustrations to control for narrative length as a narrative that is too long and complex becomes difficult to analyse and one that is too short might cause reduced incidence for the wide range of linguistic variable options that may be targeted. Westby (2005) states that it is often difficult to verify that the produced narrative was within the appropriate range of complexity and that the sample is representative of the participants' ability.

The picture book communicates a story about a boy whose bicycle was stolen. The story line gives ample opportunities for story grammar statements. Characters are portrayed with clearly illustrated emotions to encourage the use of literate language. The characters also encounter a range of differing situations that trigger feelings that in turn trigger planned actions. To understand the story the participant needs to grasp the temporal sequencing, the physical and psychological cause-effect relationships and the plans and reactions of the characters (Westby, 2005).

3.3.4 Narrative assessment protocol

A narrative assessment protocol, covering a wide range of important parameters included in a comprehensive analysis of the narratives skills of children, was developed for the purpose of the study. Variables and measurements used have all been well described in previously published research. For the purpose of the study, the following variables were selected to be included in the assessment protocol:

Macrostructure

i. Story grammars.
ii. Structure complexity.
iii. Story conventions (use of formal opening and closing statements).

Microstructure

i. Productivity (total number of words and total number of T-units).
ii. Syntactic complexity (mean length of T-unit, average length of five longest T-units and subordination).
iii. Lexical diversity (total number of different words and type token ratio).

Use of literate language features

i. Use of adverbs.
ii. Use of elaborated noun phrases.
iii. Use of mental and linguistic verbs.

Content

i. Abstract-concrete index.

These measurements are described in section 2.3.

A score sheet and summary sheet were compiled to be used when transcribing, analysing and scoring the narratives. See Appendix 4 and 10 for examples.

3.4 DATA COLLECTION PROCEDURES

Data collection took place over a period of four weeks at the three schools.

3.4.1 Pre-recording procedures

The researcher spent an average of an hour with teachers to discuss the identified participants. All assessments were done at the school. Each child was seen individually to complete the formal language tests in a quiet venue at the school.

All identified prospective candidates underwent three formal language measures to assess their language abilities. These assessments were completed in either a single session or two shorter sessions on the first visit to the school, depending on the child's cooperation. The researcher was assisted by a qualified speech-language therapist to complete the assessments.

3.4.2 Task administration and recording procedures

On the second visit a video recording was made of each participant generating a narrative elicited from the designed wordless picture book. The researcher, in an effort to ensure

reliability, collected all the narrative data. The narrative data collection took place over a period of two weeks.

3.4.3 Story presentation and procedures

Each participant was asked to preview the wordless picture book prior to telling the story. The researcher sat next to the child, while the child paged through the book silently. The researcher made no comments about the content of the story. Shapiro and Hudson (1991) and Pearce (2003) found that previewing stimulus pictures resulted in a better comprehension of the story events and components. The researcher instructed the child by saying:

> *"We are going to look at a book. It is special because it is a book with no words in it. I want you to look through the pictures so that you know what happens in the story. Then I want you to tell me the story."*

Once the child had finished looking through the pictures, s/he was instructed to turn back to the beginning and to then tell the story out loud, turning the pages as s/he went along. During the story telling the researcher only responded with neutral responses such as "*uh-huh*", "*oh*", "*okay*" and so forth, to prompt the child (refer to Appendix 2 for guidelines on allowable prompts).

3.5 PROCESSING OF DATA

After the narratives were collected, the researcher transcribed each participant's narrative according to a self-designed narrative analysis protocol.

3.5.1 Transcription and Coding

The narrative was segmented in T-units as these units are often used in analysing spoken and written narratives (Vorster, 1980; Scott & Stokes, 1995; Scott & Windson, 2000; Botting, 2002; Norbury & Bishop, 2003; Bishop & Donlan, 2005; Owens 2010). A T-unit is defined as a unit of discourse, capable of functioning as a sentence. Each T-unit consists of one main clause and any subordinate clauses attached to it (Hunt 1965, cited in Westby, 2005). Transcription, pruning, segmentation and coding of narrative data were mainly based on the procedures used in the *Test for Oral Language Production* (TOLP) by Voster (1980) (refer to Appendix 3 for details on transcription and coding).

3.5.2 Analysis of the generated narrative

The participants' narratives were analysed by the researcher with regard to macrostructural organisation, microstructural features, the use of literate language features and content.

3.5.2.1 Macrostructure

The macrostructural analyses examine the hierarchical organisation of narratives (Owens, 2010). From reviewing the literature it seems that the story grammars and story structure complexity of narrative structures identified by Stein and Glenn (1979) can provide the most relevant information for clinical work. These were used, together with story conventions, to investigate the macrostructure of narratives. These variables will be briefly described. Coding conventions used are discussed in Appendices 5 and 6.

i Story grammars

Once T-units had been coded, they were classified into the 7 story grammar**s** identified and described by Stein and Glenn (1979), namely settings (S), initiating events (IE), internal responses (IR), attempts (A), consequences (C) and reactions (R). (Refer to Appendix 5 for a description and examples.) For scoring, judgements were made on whether a story grammar statement was present or not.

ii Structure complexity

These developmental levels reflect the structural relationship of the different parts within the narrative, to the narrative as a whole. Events may be unorganised or organised sequentially or by causality. Once story grammars had been identified, narratives were divided into sequences (non-goal-based) or episodes (goal based). Tönsing and Tesner (1999) described these structural patterns in order of increasing complexity, based on the work done by Peterson and McCabe (1983).

The highest level of narrative structural complexity displayed by each participant was determined according to the Westby (2005) binary decision tree (refer to figure 2.2). Structural analyses categorised the participants' narratives into sequences, abbreviated episodes or complete episodes based on the inclusion of propositions denoting the goal-directed behaviour of characters. Each developmental level was given a value and each participant was scored on the highest level achieved in his/her specific generated narrative. Ratings from 1 to 6 were assigned to the narrative levels to denote complexity as follows: Descriptive sequence, 1; Action sequence, 2; Reactive sequence, 3; Abbreviated/incomplete episodes, 4; Complete episode, 5 and the highest rating of 6 is assigned to true Narratives with multiple episodes and an

elaborated story. Percentage scores were obtained for the highest structural level achieved by participants in each group and compared.

iii Story conventions: use of formal opening and closing statements

Expressive elaboration occurs when the storyteller goes beyond sharing information in an effort to make the narrative more interesting (Owens, 2010). One way to do this is to use appendages (for example using formal opening or closing statements). These story conventions alert the listener that the story is being told or ended and was selected for the purpose of this study as their use has been shown to develop with age (Hemphill et al., 1991).

3.5.2.2 Microstructure

The microstructural analyses focus on the internal linguistic structures within the narrative (Owens, 2010). Productivity, syntactic complexity and lexical diversity are measures used to describe this. Variables selected for microstructural analysis of the narratives will be briefly described. Coding conventions used for microstructural analysis in this study are discussed in Appendix 7.

i Productivity

Productivity was measured in terms of the total number of words (TNW) as well as the total number of T-units used (TNT) to show how much language was used in the narratives. The total number of words produced in narratives increases with age and is a measure of verbal productivity (Owens, 2010).

ii Syntactic complexity

According to Gummersall and Strong (1999), syntactic complexity develops at the clause level by means of coordination or subordination and sentence length can therefore be seen as an indication of syntactic development. Three aspects of syntactic complexity were investigated, namely the mean length of T-units (MLT), average length of the five longest T-units (A5LT) and subordination.

The mean length of T-unit (MLT) is similar to the mean length of utterance (MLU) and can be seen as the average length in words of the speaker's utterances (Owens, 2010). MLT is regarded as a more sensitive measure than MLU for children over 5 years, as it identifies phrasal embedding and other types of subordinate clauses. It also correlates to and increases with age (Owens, 2010).

The average length of the five longest utterances (A5LT) was determined by identifying the five longest T-units and dividing the TNW by 5 (Renfrew, 1997).

Subordination was calculated as percentages by dividing the number of subordinated clauses by the TNT, to correct for differences in narrative length.

iii Lexical diversity

This was measured in terms of the total number of different words used (NDW) and the type-token ratio (TTR). NDW reflects a child's expressive vocabulary size and semantic proficiency and to correct for narrative length it was calculated as a percentage by dividing the NDW by the total number of T-units in the specific narrative. TTR includes the above-mentioned correction and is the ratio of the NDW to the TNW based on a specific formula.

In this study, both NDW and TTR were therefore used to compare the different groups and not as normative measures.

3.5.2.3 Use of literate language

Literate language refers to language with a more specific lexicon and complex syntactic forms (Westby 1999), that is dependant on a child's literacy achievement (Greenhalgh & Strong, 2001). The following literate language features were assessed in this current study: use of adverbs, elaborated noun phrases and mental and linguistic verbs.

i Use of adverbs

Following Greenhalgh and Strong (2001), for the purpose of this study, only *–ly* adverbs were identified as this convenient and easy way is routinely used in research.

ii Use of elaborated noun phrases

Greenhalgh and Strong (2001) suggested that only a noun phrase with more than two noun modifiers or qualifiers should be viewed as an elaborated noun phrase (ENP). This was however viewed as unrealistic as most 5 year olds use no more than one modifier with each noun and most elaborated forms are usually produced in written language (Owens, 2010). ENPs were tallied in the presence of two or more modifiers or qualifiers.

iii Use of mental/linguistic verbs

Mental and linguistic verbs were grouped together as mental/linguistic verbs and reflect awareness of others' states of mind and the cognitive processes used to interpret intentionality (Klop, 2011). Mental verbs include acts of thinking (*decided, forgot, knew, thought, remember*) and linguistic verbs include acts of speaking (*said, called, told*).

Appendix 8 provides a description of methods, scoring of the data and examples found in the analysis done in terms of literate language style used.

3.5.2.4 Content

Content in the oral use of children's language has been investigated on a very elementary level by Reynell (1977). It is assumed that children's language will develop from more concrete to more abstract with increasing language skills.

For the purpose of this study, T-units were judged based on the Test for Oral Language Production (TOLP) (Vorster, 1980) in terms of the following criteria; labels, picture facts, abstractions or nonsense. Coding conventions are described in Appendix 9.

3.5.3 Reliability and validity

The assessment of narratives has been found to be a valid measure of expressive language. Wordless picture books and variables measured have been used in previous research and have been found to be valid measures to assess narrative skills. The narrative assessment protocol was adapted from existing formats and modified to suit the goals and aims of the study.

To establish inter-judge reliability a qualified speech-language therapist, with experience in analysing narratives, analysed a randomly selected 33% of the total of participants' narrative samples (22 narratives, and a total of 673 T-units) to verify accuracy and completeness of the transcriptions and identifying variables. A 90% agreement was accepted as adequate proof for reliability. Table 3.3 (p. 50) illustrates the inter-judge reliability for transcriptions and data coding prior to discussion and correction.

Disagreement on the three highlighted areas raised major concerns. After further investigation by the researcher it became clear that the researcher and inter-rater had used different definitions and scoring criteria. After the discrepancies were discussed, the researcher revised and clarified the coding conventions as follows:

- The Westby (2005) *binary decision tree* was revised and illustrated with extra definitions and examples for easier use. Refer to Appendix 6 for details. After discussion, 100% agreement was attained and the researcher used the revised decision tree to check all the narratives again in terms of the complexity of the story structure.

- The inter-rater used the Greenhalgh and Strong (2001) *definition of an ENP* where only noun phrases with *more than two* modifiers or qualifiers are viewed and scored as ENP. For the purpose of this study the researcher specified that *more than one* modifier or qualifier constitutes an ENP. Once clarified, 100% agreement was attained.

- There were only two disagreements in terms of identifying *mental/linguistic verbs*. The verbs *called* and *barking* were not to be accepted as M/L verbs.

  Mother called the police (synonym *phoned*, and therefore not accepted)

  The dog started barking (considered as a normal action in dogs, as *scratching, eating*, and so forth in this form and therefore not accepted)

Should an explicit statement have been made, for example "*the dog barked to warn the family*" or "*whoof whoof, go away! Barked the dog,*" it would have been considered. These examples were included in the coding conventions in Appendix 7 for clarity sake.

Table 3.3
Inter-judge reliability for transcriptions and data coding.

Measure	Agreement
Transcriptions and coding	99.9%
Macrostructural measurements	
• Story grammars	100%
• Structural complexity	**40%**
• Story conventions (formal opening/ending statements)	100%
Microstructural measurements	
• Productivity	
Total number of words (TNW)	100%
Total number of T-units (TNT)	100%
• Syntactic Complexity	
Mean length of T-unit (MLT)	100%
Average length of 5 longest T-units (A5LT)	100%
Subordination	99.17%
• Lexical diversity	
Total number of different words (NDW)	100%
Type token ratio (TTR)	100%
Use of literate language features	
• Use of adverbs	100%
• Use of elaborated noun phrases	**50.85%**
• Use of mental/linguistic verbs	**51.28%**
Content	
• Abstract-concrete ratio	100%

Note: Percentages in bold indicated poor reliability and after scoring conventions were clarified and discrepancies were discussed and corrected, 100% agreement was attained.

Discrepancies were discussed and corrected so that 100% agreement was attained before statistical analysis of the data.

3.5.4 Statistical analysis

The data analysis mainly focussed on comparing the different narrative measures of the three different age groups to investigate group differences and possible developmental patterns. A statistician, familiar with research in the field of communication disorders, was consulted to advise upon the most appropriate analysis to be used to demonstrate findings in terms of answering the research question.

The use of story grammar elements, story conventions and *–ly* adverbs were analysed as categorical variables (i.e. present/absent in terms of whether they were included in the narrative). A Chi-square test was used to compare the frequency of present/absent responses between the three independent groups and group differences were verified using 95% confidence intervals. Values were considered significant if group differences showed *p*-values equal to or less than 0.05.

One-way analysis of variance (one-way ANOVA) was used to compare means of all the other variables between the three age groups (using the F distribution). The ANOVA tests the null hypothesis that suggests that there is no significant difference between the different age groups in terms of the narrative variables assessed. A 5% significant level ($p < 0.05$) was used as a guideline for determining significant effects of variables, concluding that a *p*-value of less than 0.05 rejects the hypothesis and suggest a significant difference between groups. Post hoc analyses were done using Fisher least significant differences (LSD) tests.

Quantitative and qualitative data, analysed by means of descriptive statistics, is presented in tables and graphs. These include means, percentages and relative frequency measures expressed as percentages.

3.6 ETHICAL CONSIDERATIONS

The data for this thesis is extracted from a project done by the researcher with the aim of developing an assessment protocol for the analysis of narratives in children. The project was approved by the WCED (see Appendix 14) and received ethical clearance from the Ethics Committee of Health Sciences of Stellenbosch University (see Appendix 13), confirming that it adhered to all prerequisites for ethical clearance based on the Declaration of Helsinki, developed by the World Medical Association. Informed consent was obtained from the school principals of all three schools which had been identified to take part in the study before participants were identified and parents approached for consent. Written consent was obtained from participants' parents or guardians and verbal assent was obtained from participants (see Appendix 11). Parents and participants were informed that participation was voluntary and that they could

withdraw from the study at any stage of the process. To ensure confidentiality and anonymity, participants and schools were given codes and their identities are not revealed in the dissertation.

3.7 DISSEMINATION OF RESULTS

The results will be made available to the three schools involved and the Western Cape Educational Department. The findings are compiled into a thesis and will be made available to colleagues and the public. All records will be kept for a period of 7 years after which they will be destroyed.

4. RESULTS: PRESENTATION AND DISCUSSION

The main aim of this study was to investigate developmental patterns in the narratives of normally developing children between the ages of 5 and 9 years and 6 months. Three age groups were investigated; a pre-primary (Grade R) group, aged between 5 years and 6 years old (n=20); a Grade 1 group, aged between 6 years and 7 years (n=20) and a Grade 3 group, aged between 8 years and 6 months and 9 years and 6 months (n=22). It was assumed that the participants in these three age groups would display distinct patterns of narratives development and that there would be an increase in the complexity of participants' narrative features with age.

The presentation and discussion of the results will be structured around the aims of the study that lead forth from the main research question. Conclusions regarding the main question, *What are the patterns of narrative development in normally developing children?* will be drawn in the final chapter of the thesis.

This chapter is structured around the following aims:

Aim 1: To examine the differences between participants' narratives in the three age groups for the following macrostructural variables: story grammar elements, complexity of story structures and story conventions.

Aim 2: To examine the differences between participants' narratives in the three age groups for the following microstructural variables: sentence productivity (total number of words and total number of T-units), syntactic complexity (mean length of T-unit, average of 5 longest T-units and subordination) and lexical diversity (total number of different words and type-token ratio).

Aim 3: To examine the differences between participants' narratives in the three age groups for literate language features, namely their use of adverbs, elaborated noun phrases and mental and linguistic verbs.

Aim 4: To examine the differences between participants' narratives in the three age groups in terms of the ratio between abstractions and picture facts included in their narratives.

One-way analysis of variance (one-way ANOVA) was used to compare means of the variables between the three age groups (using the *F* distribution). The ANOVA tests the null hypothesis that suggests that there is no significant difference between the different age groups in terms of the narrative variables assessed. A 5% significant level ($p < .05$) was used as a guideline for

determining significant effects of variables, concluding that a *p* value of less than 0.05 rejects the hypothesis and suggests a significant difference between groups. Post hoc analyses were done, using Fisher least significant differences (LSD) tests, to determine the significant differences between group means. The letters (e.g. *a*) in figures denote significant differences on a 5% ($p < .05$) level. Similar letters denote no significant difference between scores, whereas different letters indicate that significant differences occurred. For example, *a* and *b* denote statistically significant differences, but *a* and *ab* indicate no significant difference.

A Chi-square test (χ^2) was used to analyse categorical data and to compare the frequency of present/absent responses with theoretical predicted frequencies. The three independent groups and group differences were verified using 95% confidence intervals. Values were considered significant if group differences showed *p* values equal or less than 0.05 ($p \leq .05$).

4.1 MACROSTRUCTURE OF NARRATIVES FOR THE DIFFERENT AGE GROUPS

Aim 1: To examine the differences between participants' narratives in the three age groups for macrostructural variables.

In order to accomplish this aim, the participants' narratives were analysed on a macrostructural level to investigate the global organisation of their narratives. This was done to determine if, and at what age, the participants were able to produce narratives that demonstrated their understanding of characters' goal-directed behaviour.

"Story grammars are goal-based definitions of stories in which a major character, the protagonist, is motivated to achieve a goal through engaging in some type of goal-orientated actions" (Hedberg & Stoel-Gammon, 1986, p.64). The seven story grammar components described by Stein and Glenn (1979 cited in Owens, 2010) and discussed in chapter 3 were identified in the narratives as being present or not.

The structural complexity of the story reflects the structural relationship of the different parts, within the narrative, to the narrative as a whole. Events may be unorganised or organised sequentially or by causality.

The macrostructural measures, story grammar elements and story conventions, were analysed as categorical variables (i.e. present/absent in terms of whether they were included in the narrative). A Chi-square test (χ^2) was used to compare the frequency of present/absent responses between the three independent groups. Table 4.1 describes the mean percentage scores and *p* values per group to illustrate development for the macrostructural variables which,

in turn, pertain to story grammar and story conventions.

Table 4.1
Macrostructure variables: percentages and p values per group variables

Macrostructural variables	*p* value	Groups: Grade R (n=20) (5-6 years)	Grade 1 (n=20) (6-7 years)	Grade 3 (n=22) (8½ -9½ years)
Story grammar elements				
Setting (S)	0.00031	55	80	100
Initiating event (IE)	*	90	100	100
Internal response (IR)	0.44571	50	65	68.18
Internal plan (IP)	0.98407	20	20	18.18
Action (A)	*	90	100	100
Direct Consequence (DC)	*	90	100	100
Reaction (R)	0.00041	40	85	90.91
Story conventions				
Use of formal opening	0.00002	10	35	77.27
Use of formal closing	0.10395	10	30	36.36

Note. * Not enough "no" cases for statistical analysis.

4.1.1 Story grammar elements

Are there differences between the three age groups in terms of the use of story grammar elements?

All the participants, except for two in Grade R, made use of Initiating events (IE), Actions (A) and Direct consequences (DC) in their narratives. Very few of the participants (≤ 20%) demonstrated the use of Internal plans (IP). An increase in the number of Internal responses (IR) was observed with age, but this was not statistically significant, $\chi^2(2, N = 62) = 1.62$, $p = .44571$. The results concurred with the findings of Ripich and Griffith (1988) that IP and IR are the story grammar elements with the lowest frequency in children's narratives.

Results from this study indicated that by the age of 5 years, the use of story grammar elements IE, A and DC were well established. Norbury and Bishop (2003) found that by age 5 children were able to provide an IE but that very few (20%) provided adequate *outcomes* (R). This was supported by the findings in the current study. Norbury and Bishop (2003) did however find that only 50% of five year olds provided explicit attempts to solving the problem (A), but by the age of 9 the use of A was well established. In contrast with the findings of Norbury and Bishop (2003) A was included in most of the narratives of children in Grade R. A possible explanation could be the nature of the elicitation stimuli factor. By merely describing the actions portrayed in the pictures, a child may get credit for A without really linking the actions to the specific goal. In other words, the child may get credit for describing observable actions as a series of attempts. Although not clearly specified in their article, Norbury and Bishop (2003) might only have scored an A for attempts linked to goals.

The current study showed a significant increase in the emergence of the use of settings (S), $\chi^2(2, N = 62) = 16.14$, $p < .001$ and reactions (R), $\chi^2(2, N = 62) = 15.60$, $p < .001$, with age in participants' narratives. It would therefore seem as though only half of the children aged around 5, were able to use the pictures as a guideline to orientate the listener in terms of the character, place or time in their stories, but by the age of 9 years 6 months nearly all were able to do this. These results were expected as the use of orientations and mental states shows a marked increase once children are exposed to more formal language in the educational environment (Roth & Spekman, 1986; Merrit & Liles, 1987).

Although not statistically significant, an increase in the use of IR across the age groups was observed, $\chi^2(2, N = 62) = 1.62$, $p = .44571$. This finding is supported by the findings of Roth and Spekman (1986), who found that only after children enter school at the age of 6 do they learn to tell stories pertaining to the "inner life" of characters (reflected by IR elements in their narratives).

Examples of Setting statements produced by the participants include:

(1) *He was home with his dog.*
(Participant A015, Grade R)

(2) *Molly and Peter were at home and their dog was very good.*
(Participant B017, Grade 1)

(3) *Once upon a time there was a family.*
The family bought the brother a bike.
(Participant C009, Grade 3)

One can see from these examples that there is an increased level of sophistication in the use of setting statements. Examples of reactions produced by the participants include:

(4) *The police caught the robber…*
Reaction: *He was happy and the mom.*
(Participant A005, Grade R)

(5) *Outside they heard a thief…*
Reaction: *The girl got a fright.*
(Participant B001, Grade 1)

(6) *The police came and they caught him.*
Reaction: *Everyone said: "Thank you" and the dog was happy also and then he brought his bike in.*
(Participant C019, Grade 3)

Merrit and Liles (1987) discovered a clear hierarchy in terms of the frequency of use of different story grammar elements, both in normally developing 9 year olds and their SLI peers. They found that in the normally developing group, IEs were most frequently used, followed by DC, A, S, IR and then R. The same pattern was observed in the development of these elements.

Except for the limited use of IP in the Grade 3 group, results concur with that of Norbury and Bishop (2003) and Owens (2010) suggesting that in general, typically developing children produce all of the story grammar elements by age 9.

4.1.2 Structural complexity

Are there differences between the three age groups in terms of highest level of narrative development achieved?

The highest level of structural complexity in the narrative displayed by each participant was determined according to the Westby (2005) binary decision tree (refer to Appendix 6). Structural analyses categorised the participants' narratives into sequences, abbreviated episodes or complete episodes based on the inclusion of propositions denoting goal-directed behaviour of characters. Each developmental level was given a value and each participant was scored on the highest level achieved in his/her specific generated narrative. In other words, a narrative might for example contain sequences, but should the use of episodes emerge, the participant was scored for the episode usage (thus, the highest narrative level used). Ratings from 1 to 6 were assigned to the narrative levels to denote complexity. Percentage scores were obtained for the highest narrative level achieved by participants in each group and compared. The development of the complexity of narratives generated is demonstrated in Table 4.2.

Table 4.2
Macrostructural complexity: Percentages for narrative levels per group inclusion

Narrative level	Groups		
	Grade R (n=20) (5.6-6 years)	Grade 1 (n=20) (6.5-7 years)	Grade 3 (n=22) (9-9.5 years)
	0	0	0
1. Descriptive sequence	15	0	0
2. Action sequence	10	5	0
3. Reactive sequence	35	25	13.64
4. Abbreviated/incomplete episodes	30	35	13.64
5. Complete episodes	10	35	72.73

6. Complex narrative

Owens (2010) describes sequences as events that are linked on the basis of similar attributes or events that create a simple but meaningful focus for a story. Temporal events emerge between the ages of 3 and 5 and although there is sequencing, there is no plot and no causality. Very few of the total number of participants' narratives were rated as sequences (i.e. the three earliest levels and therefore lowest ratings for narrative development). None of the participants used only descriptive sequences and only 3 participants in Grade R used only action sequences. One participant in Grade R and one in Grade 1 used only reaction sequences. The following are examples of sequences produced by participants:

(7) *the dog was running*
he was crying
then he was gonna take his bicycle back
and he was tired
and they are sleeping
(Action sequence; Participant A015, Grade R)

(8) *the dog is jumping on to them when they going out*
the boy fell off the bicycle
then he was crying
the dog was sleeping
she's 'skelling' the dog cause he woke them up
and they're looking outside
and there's burglar
and then she's calling the police
then the police took the burglar gone.
(Reactive sequence; participant A020, Grade R)

The majority of the participants in Grade R's (35%) narratives can be described as abbreviated or incomplete episodes, in other words, structures containing no explicit goal-directed behaviour, for example:

(9) *he hears a noise, but he knew there was a baddie there*
so he: "shh, don't look"
then the people called the polices
and then the polices waited to come
then they come

"Thank you polices"
(Abbreviated episode; participant A014, Grade R)

Complete episodes contain an entire goal oriented behaviour sequence. Trabasso and Nickels (1992) found that, although comprehension of a goal-attempt-outcome (GAO) structure is attained by age four, coherence is only demonstrated in the use of GAO in narratives by the age of 5. Kemper and Edwards (1986) found that it is generally not until age 6 that children's narratives are causally coherent. These findings confirm those of the current study in that most of the Grade R participants (35%) used incomplete episodes, with complete episodes starting to emerge. Most children in Grade 1 were using complete episodes in their stories and by Grade 3 the majority of the participants (72.72%) were able to produce true narratives, with multiple, elaborated complex episodes. Examples of complete episodes include:

(10) *the dog wanted to ride*
but he couldn't
the dog ran after the bicycle
and he wanted to ride
and the mom said: no
she was very angry
(Complete episode; participant B004, Grade 1)

(11) *the dog heard something*
he thought: what could it be?
he was barking and it woke the children up
the mother got very very angry
then the mother looked out the window to see what he was barking at
there was a burglar going to steal the bike
and the girl got very frightened
but the boy was trying to keep her quiet
the mother phoned the police station
and then they said they were gonna come
they took the man on their way
and then his bicycle as safe
it wasn't stolen anymore
(Narrative with complex episodes; participant C022, Grade 3)

Figure 4.1 illustrates the mean scores for the highest narrative levels achieved per group, demonstrating the development in terms of the narrative structural complexity with age.

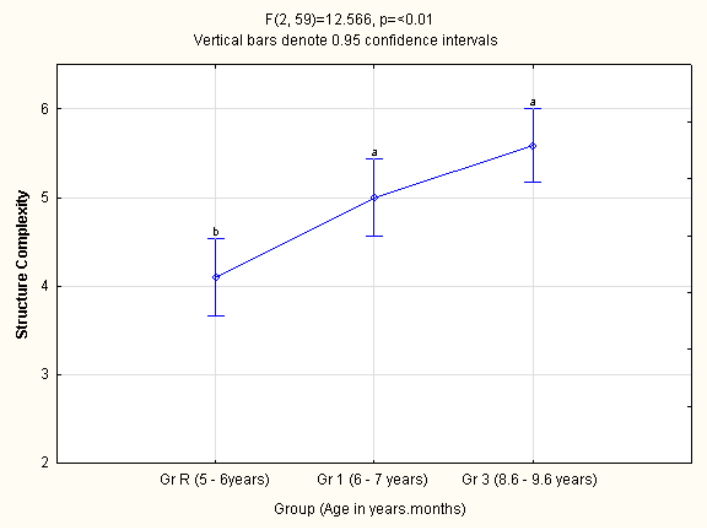

Figure 4.1 Mean scores for highest narrative levels achieved per group.
*****Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

The mean scores based on the 6-point rating scale for each group were compared. As expected, narrative levels showed an increased complexity with age. Chi-square testing, using 95% confidence intervals, confirmed that the difference between Grade R and Grade 1 was significant, $\chi^2(2, N = 62) = 12.566$, $p < .001$, but that there was no significant developmental change in terms of the narrative rating between the groups in Grade 1 and Grade 3. The acceleration in development once the children start attending formal schooling could be explained by the fact that they are introduced to more formal language, for example in books and reading. Studies confirm a spurt in the development of narratives around age 5, with "ideal narrative structures" formed by the age of 6 (McCabe & Rollins, 1994), however development continues in 9 and 10 year old children (Liles, 1993).

4.1.3 Story conventions: Use of formal opening/closing statements

Are there differences between the three age groups in terms of the use of a formal opening or closing statement in the narratives produced?

Very few participants in all the age groups (between 10 and 35%) made use of formal closing statements in their narratives. The Grade R and Grade 1 participants rarely used formal opening statements however, the majority of the participants in Grade 3 (77.27%), did make use of a formal opening statement. A significant increase in the use of a formal opening statement with age, $\chi^2(2, N = 62) = 21.85$, $p < .001$, was observed.

Typical examples of formal opening statements include:

(12) *One day there was a family and a dog*
(Participant C002, Grade 3)

(13) *Once upon a time there was a family*
(Participant C009, Grade 3)

Typical examples of formal closing statements produced by the Grade 3 participants include:

(14) *The end.*
(Participant C009, Grade 3)

(15) *And they lived happily ever after.*
(Participant C005, Grade 3)

Owens (2010) found that by the time children reach Grade 2 they not only use beginning and ending markers, but also evaluative markers, such as "*that was a good one"*. Findings by Hemphill, et al. (1991) support this result in that both the typically developing 7 to 8 year old children (mean age 7.8 years) as well as those with mild cognitive delays, matched for mental age, used formal opening and closing statements. In contrast, the results of this study showed that very few (10-30%) of the participants used formal closing statements in their generated narratives. Although formal opening statements were rarely used in Grade R and Grade 1 (10-35%), the majority of the children in Grade 3 (77%) were using these statements. A possible explanation could be that when using a picture stimulus within a shared context, the narrator might find it unnecessary to use a formal statement to indicate the beginning or ending of the story. In contrast, when telling a personal narrative, the narrator may be more likely to use a formal closing statement to indicate the end of the narrative. Grade 3s might start to copy the use of formal closing statements in their narratives, based on their increased knowledge of books and exposure to literate language and story conventions.

Summary of the results for macrostructural measures

Aim 1: To examine the differences between participants' narratives in the three age groups for macrostructural variables.

In summary, a developmental trajectory was observed in terms of the use of all the macrostructural variables investigated. Results indicated that the story grammar elements initiating event (IE), attempt (A) and direct consequence (DC) were established by the age of 5 to 6 years. Next to develop was the use of a setting statement (S) and reactions (R) and these were well established by the age of 8 years 6 months to 9 years 6 months. Although half of the participants in Grade R made use of internal responses (IR), there was no significant increase or development from Grade R to Grade 3. Very few of the participants (≤ 20%), even up to the age of 9, used internal plan statements (IP).

The structural complexity of participants' narratives showed clear developmental patterns. By the age of 5 to 6 years most children used either incomplete or complete episodes in their narratives. By Grade 1, most of the participants used complete episodes within their narratives. At this stage true narratives also start to emerge. By age 9 years 6 months most children are able to produce complex narratives.

In this study, very few children under the age of 9 were found to make use of formal closing statements when generating a story from a wordless picture book. The use of formal openings emerges in Grade 1 with significantly more children in grade 3 using these statements. The possibility of a stimulus effect when using a wordless picture book has been discussed.

4.2 MICRO STRUCTURE OF NARRATIVES FOR THE DIFFERENT AGE GROUPS

Aim 2: To examine the differences between participants' narratives in the three age groups for microstructural variables.

In order to accomplish this aim, the microstructural organisation of participants' narratives were analysed in terms of productivity, syntactic complexity and lexical diversity.

Differences between groups pertaining to the amount of language they produced (i.e. productivity) were investigated in terms of the total number of words (TNW) and the total number of T-units produced in each narrative. Syntactic complexity measures included mean length of T-unit (MLT), mean length of the five longest T-units per narrative (A5LT) and the use of subordination. The total number of different words (NDW) and type token ratio (TTR) were used to describe lexical diversity. NDW is an indication of vocabulary size and semantic proficiency and TTR is the ratio of the NDW to the TNW. Following Vorster (1980), TTR was calculated by dividing the NDW by the square root of TNW multiplied by 2 (NDW ÷√TNWx2). This arbitrary, but reasonably effective formula, decreases the effect of uneven sample sizes when calculating the TTR.

ANOVAs were used to compare means of these variables between the three age groups at a 95% confidence level. Fisher least significant differences (LSD) test post hoc analyses were done at a 5% level to determine whether differences in variables between groups were significant. Table 4.2 provides a description of the mean percentage scores obtained for microstructural variables investigated in order to illustrate the development of these skills.

Table 4.3
Microstructure variables: summary of the means, ranges and standard deviations per group variables

Micro-structural variables	Groups								
	Grade R (n=20) (5-6 years)			Grade 1 (n=20) (6-7 years)			Grade 3 (n=22) (8½ - 9 ½ years)		
	Mean	Range	SD	Mean	Range	SD	Mean	Range	SD
Productivity									
TNW	150.45	58-290	64.9	152.9	87-387	74.98	180.05	86-342	75.29
Total T-units	26.15	13-55	11.13	25.85	14-63	12.12	26.91	12-52	10.94
Syntactic complexity									
MLT	5.69	4.14-7.22	0.73	5.95	4.7-10.12	1.31	6.68	5.3-9.91	1.18
A5LT	9.45	5.4-13.8	2.07	9.71	6-12.2	2.45	11.26	7.6-16.4	2.59
Subordination	0.07	0-0.26	0.06	0.04	0-0.32	0.05	0.12	0-0.36	0.1
Lexical diversity									
NDW	2.74	1.71-4.07	0.52	2.97	1.92-4.88	0.69	3.32	2.06-5.31	0.72
TTR	4.04	3.2-4.94	0.43	4.15	3.56-4.89	0.35	4.51	3.56-5.97	0.56

4.2.1 Productivity

Are there differences between the three age groups in terms of productivity?

In order to answer this question TNW and total number of T-units produced by the different age groups were compared.

4.2.1.1 Total number of words (TNW)

There was a considerable variation in the TNW produced by the individual participants (refer to TNW range and SD in table 4.2). Although the Grade 3 participants included more words in their narratives, ANOVA measures indicated no significant differences between the groups in terms of narrative length, $F(2, 59) = 1.11$, $p = .34$.

Note that, when using data with very large variation (for example the large SD observed in the productivity measures, TNW and TTU) it is hard to establish statistical significance or to establish separate norms, as the means used in the calculation are not good representatives of the data. This variability appears to be in indication of the diversity in the skills of the typically developing children in this age group.

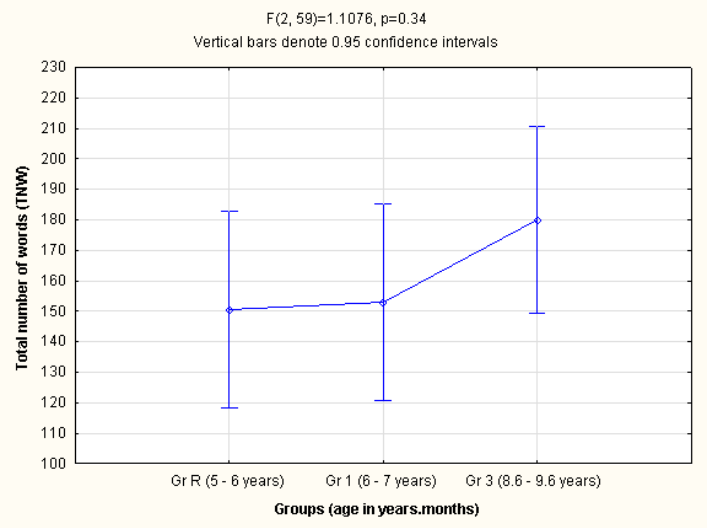

Figure 4.2 Means per group for total number of words (TNW) used.

The steady increase of TNW and TNT (total number of T-units) used with age is supported by published research (Botting, 2002; Norbury & Bishop, 2003) with narrative length increasing up to the age of 9 (Scott & Stokes, 1995). Ripich and Griffith (1988) found no significant difference in TNW used between the age of 7 and 12 year olds. TNW is also affected by other factors, such as motor ability and word retrieval, and its validity as a measure of pre-school (Gavin & Giles, 1996 cited in Owens, 2010) and early school age language development (Merrit & Liles, 1987) has been questioned.

4.2.1.2 Total number of T-units

As depicted in figure 4.3, little variation occurred in the number of T-units used by individual participants across age groups, $F(2, 59) = 4.05$, $p = .95$, with participants in all three age groups producing narratives of very similar lengths when asked to generate a story facilitated by the wordless picture book.

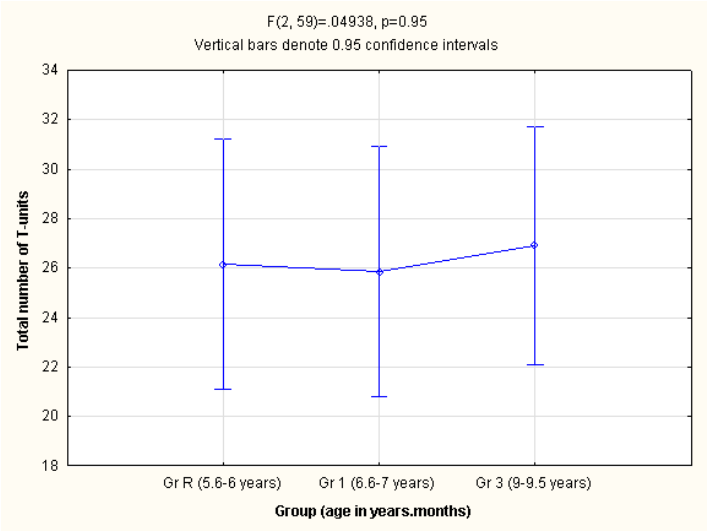

Figure 4.3 Means per group for total number of T-units scores.

It is interesting to note that young ND children, between the ages of 5 and 9 years old in this study, exhibit the same productivity in terms of narratives generated from the wordless picture book developed for the purpose of this study. This finding was not totally unexpected as Bamberg and Damrad-Frye (1990) found that the narratives of 9 year olds were slightly shorter than those elicited from 5 year olds. Despite the shorter story length, there was no impoverishment in the narrative quality, due to the overall use of evaluative devices that increased significantly with age. The 9 year olds therefore restricted themselves to relevant story information.

4.2.2 Syntactic complexity

Are there differences between the three age groups in terms of syntactic complexity?

Syntactic complexity develops at the clause level through coordination or subordination and is marked by an increase in utterance length (Scott & Stokes, 1995; Gummersall & Strong, 1999). In order to answer the question three aspects of syntactic complexity, namely mean length of T-unit (MLT), mean length of the five longest T-units (AL5T) and subordination (number of subordinate clauses per T-units) were compared.

MLT was calculated by dividing the total number of words (TNW) by the total number of T-units. The five longest T-units were identified and the total number of words in these T-units was divided by five to calculate AL5T. Subordination was calculated by adding up the total number of subordinated clauses in each narrative and then dividing this by the total number of T-units to correct for differences in narrative length.

4.2.2.1 Mean length of T-unit

As shown in figure 4.4 the mean length of T-units of the Grade R and Grade 1 groups were very similar. Fisher LSD post hoc tests confirmed a significant increase in the MLT in the Grade 3 group in comparison with the other 2 groups, $F(2, 59) = 4.55$, $p = .01$. It is therefore clear that even though the narratives produced in all age groups were similar in length, the sentences used by the Grade 3 group were significantly more complex.

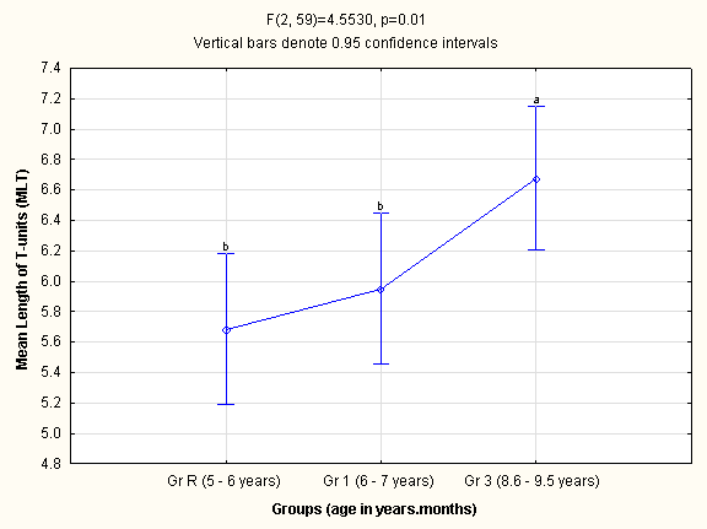

Figure 4.4 Means per group for mean length of T-unit (MLT) scores. Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

One can assume that with increased syntactic complexity, for instance when using more coordination and subordination, MLTs and A5LTs will increase. This was confirmed with the Grade 3 group showing a significant increase in the use of subordination (refer to 4.2.2.3). Roth and Spekman (1989) found no significant differences in the syntactic complexity of 8 year old and 13 year old children.

4.2.2.2 Average length of the 5 longest T-units (A5LT)

The average length of the 5 longest T-units correlated with the MLT in that the means for the Grade R and Grade 1 groups were very similar. As expected, following the MLT results, the Fisher LSD post hoc test confirmed a significant increase, $F(2, 59) = 3.59$, $p = .03$ in A5LT in Grade 3.

Typical examples of the 5 longest T-units produced in the different age groups include:

(16) *the mom says the boy must ride his bicycle*
when the boy rides the bicycle the dog wakes up
the mom said: put your bicycle against there
the boy just takes his bike in and closes the door
then the mom give the dog a bone
(Participant A003, Grade R)
(Syntactic complexity level: abbreviated episodes, A5LT = 9.6 words)

(17) *their mom said to them: let's go take the dog inside*
Susie and Janet went for a ride on the bike
they had to sleep and have a good night rest
mom called the police to see if the police could help
mom said: you glad you got your bike back, Janet
(Participant B011, Grade 1)
(Syntactic complexity level: complete episodes, A5LT = 10.6 words)

(18) *once there was a family that had a son and a daughter and a brown dog*
sister was walking very slowly because she was very tired
suddenly he woke up and he started to bark in the night
their mother opened up the curtains and saw a burglar
by at one o'clock the police came just on time before he came into the house
(Participant C020, Grade 3)
(Syntactic complexity level: complex narrative, A5LT = 13 words)

These examples demonstrate how syntactic complexity correlates with an increase in sentence length by using elaborated noun phrases, coordination and subordination as seen in the language displayed by the Grade 3 participant. Syntactically more structured stories also display more causality through the use of connectives for subordination. As expected and depicted in figure 4.4 and 4.5, MLT and A5LT increase with age, especially towards Grade 3, when subordination becomes more evident in the narratives of children.

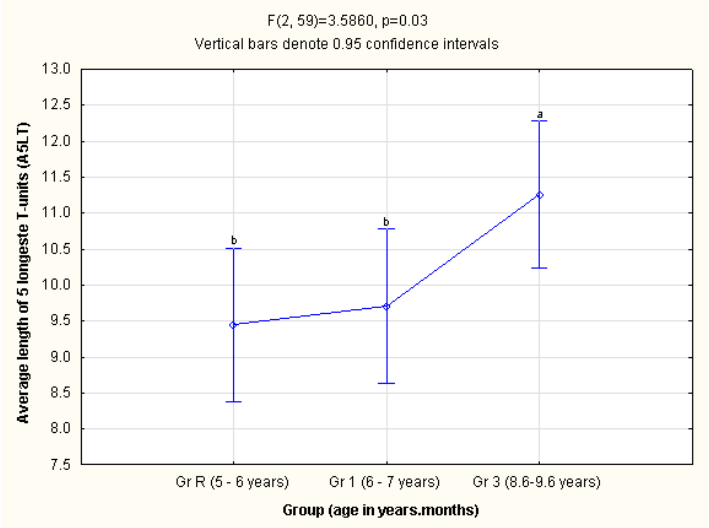

Figure 4.5 Means per group for 5 longest T-units (A5LT) used. Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

4.2.2.3 Subordination

To correct for the differences in the length of participants' narratives, subordination was calculated as percentages by dividing the total number of subordinated clauses by the total number of T-units.

In general, very few of the participants used subordination in their narratives. On average, the Grade R and Grade 1 groups' use of subordination did not differ significantly. There was a significant increase in the use of subordination in Grade 3, $F(2, 59) = 6.49$, $p < .01$ (see figure 4.6).

Examples of subordinate clauses used by the participants include:

(19) *the boy took his bike inside <u>where it was safe</u>*
(Participant C009, Grade 3)

(20) *<u>while he was riding pass the washing line,</u> the dog jumped the wishing line off*
(Participant C015, Grade 3)

(21) *the mother looked out the window to see <u>what he was barking at</u>*
(Embedded clause: Participant C022, Grade 3)

Figure 4.6 demonstrates the significant increase in the use of subordination in Grade 3.

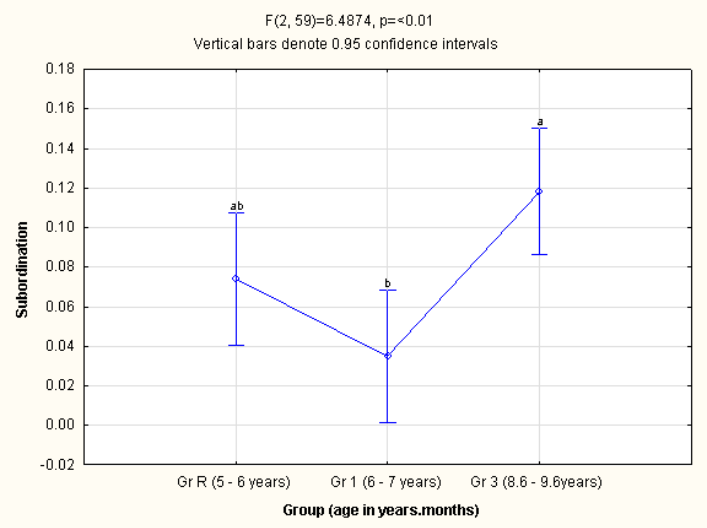

Figure 4.6 Means per group for % subordination included in participants' narratives. Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

Even though the narratives produced in all age groups were similar in length, the sentences used by the Grade 3 group were significantly longer (as depicted by the significant difference in MLT and A5LT in figures 4.4 and 4.5). One can assume that with increased syntactic complexity, for instance when using more coordination and subordination, sentence length will increase.

This increase in the use of subordination with age is well documented (Scott & Stokes, 1995; Greenhalgh & Strong, 2001; Owens, 2010). Children between the ages of 2 and 3 tend to produce short narratives relying on simple sentence structures (Kemper, 1984 cited in Hemphill, 1991) and as they get older they start to link events, and narratives thus become increasingly longer.

4.2.3 Lexical diversity

Are there differences between the three age groups in terms of lexical diversity?

Two measures of lexical diversity in the generated narratives of the three groups, namely number of different words (NDW) and type-token-ratio (TTR) were examined. NDW reflects a child's expressive vocabulary size and semantic proficiency.

The considerable differences in the length of the participants' narratives in terms of TNW and total number of T-units may compromise the validity of NDW as a measure of lexical diversity, as it may rather reflect differences in the lengths of the narratives. TTR is the ratio of the NDW to the TNW in a language sample and was used to correct for differences in narrative lengths.

4.2.3.1 Total number of different words (NDW)

As expected and depicted in Figure 4.7, NDW used per T-unit increased with age. Fisher LSD post hoc tests confirmed that the increase between the Grade R and Grade 3 groups was significant, $F(2, 62) = 4.2$, $p = .01$ but not between the Grade R and Grade 1 or Grade 1 and Grade 3 groups.

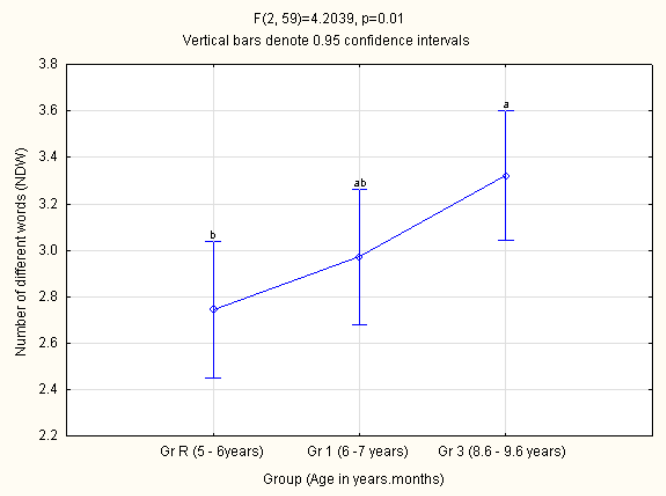

Figure 4.7 Means per group for NDW scores. Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

The NDW is strongly correlated with age (Leadholm & Miller, 1995 cited in Botting, 2002) and is a measure of lexical diversity (Greenhalgh & Strong, 2001). Clear developmental patterns in the narratives of very young children, showing shorter story lengths and fewer different words, (NDW) have been described.

4.2.3.2 Type token ratio

As expected from NDW results, TTR shows an increase with age. Fisher LSD post hoc tests confirmed a significant increase from Grade R to Grade 3, $F(2, 59) = 6.2556$, $p < .01$. This increase in lexical diversity is depicted in Figure 4.8

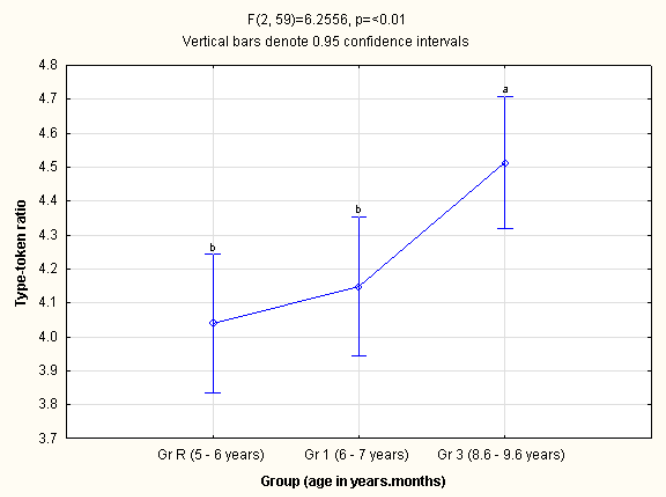

Figure 4.8 Means per group for type-token ratio (TTR) scores. Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

Klee (1992, cited in Owens 2010) found that TTR changes little with age. TTR has found to be influenced by several factors with less variability across larger samples of 350 words or more (Hess et al, 1987 cited in Owens, 2010). Only one participant in Grade 1 used more than 350 in his/her narrative sample.

Watkins et al. (1995) found that NDW provides a more sensitive and informative estimate of lexical diversity than TTR. However, in investigating lexical diversity within a normally developing group, similar findings were demonstrated using either of the measurements. There was little development in lexical diversity between Grade R and Grade 1 with a significant increase in Grade 3.

Summary of the results for micro-structure measures

Aim 2: To examine the differences between participants' narratives in the three age groups for microstructural variables.

In summary, all age groups generated narratives of similar lengths in response to a wordless picture book as elicitation stimulus. This was confirmed by both the productivity measures, TNW and Total number of T-units.

Complexity measures (mean length of T-unit and A5LT) revealed that although the narratives were similar in length, sentences were significantly longer in the Grade 3 group. It is assumed that the significant increase in the use of subordination in this group could explain this phenomenon.

Results confirm a steady growth in terms of lexical diversity as measured by NDW and TTR from Grade R to Grade 3.

4.3 USE OF LITERATE LANGUAGE FEATURES IN NARRATIVES FOR THE DIFFERENT AGE GROUPS

Aim 3: To examine the differences between participants' narratives in the three age groups in terms of literate language features used.

In order to accomplish this aim, the participants' narratives were analysed in terms of the use of adverbs, elaborated noun phrases (ENP) and mental and linguistic verbs (M/L verbs).

The results of the use of adverbs were presented as categorical variables (i.e. present/absent in terms of presence of a *–ly* adverb in the narrative). A Chi-square test (χ^2) was used to compare the frequency of present/absent responses for the use of adverbs between the three independent groups and is depicted in table 4.4 and discussed in section 4.3.1.

Table 4.4
Literate language features: summary of the means, and p values per group

Literate language features	*p* value	Groups		
		Grade R (n=20) (5-6 years)	Grade 1 (n=20) (6-7 years)	Grade 3 (n=22) (8½ -9½ years)
Use of adverbs	0.20034	20%	15%	38.1%

The total number of ENPs in participants' narratives was calculated as proportions by dividing the number of ENPs by the number of T-units to correct for differences in narrative length.

Mental and linguistic verbs were grouped together as mental/linguistic verbs. M/L verbs were calculated as percentages by dividing the total number of M/L verbs by the total number of T-units to correct for the considerable differences in the length of the participants' narratives.

ANOVA was used to compare the means of ENP and M/L verbs used between the three age groups at a 95% confidence level. Fisher least significant differences (LSD) test post hoc analyses were performed at a 5% level to determine whether differences in variables between groups were significant. Table 4.5 provides a description of the mean percentage scores obtained for literate language variables investigated to illustrate development with age.

Table 4.5
Literate language features: Summary of the means, ranges and standard deviations per group variables

Literate language features	Groups								
	Grade R (n=20) (5-6 years)			Grade 1 (n=20) (6-7 years)			Grade 3 (n=22) (8½ -9½ years)		
	Mean	Range	SD	Mean	Range	SD	Mean	Range	SD
Use of M/L verbs	0.07	0-0.17	0.05	0.14	0-0.32	0.14	0.12	0-0.24	0.11
Use of ENP	0.03	0-0.13	0.04	0.13	0-0.69	0.18	0.08	0-0.26	0.07

4.3.1 Use of adverbs

Are there differences between the three age groups in terms of the use of adverbs in their narratives?

Overall, very few of the participants made use of *–ly* adverbs. There was a marked increase in the use of adverbs in the Grade 3 group, but it was not significant, $\chi^2(2, N = 62) = 3.22$, $p = .20034$.

Westby (1999) found that adverbs often indicate time, manner and degree. Further investigations revealed an interesting change of choice and variety (i.e. time, manner or degree) of *–ly* adverbs in the different age groups. It should be noted that participants in general used very few adverbs and that the observed trends might be misleading. All *–ly* adverbs used in all groups are displayed in table 4.6 to illustrate the preferred adverbs used in each group.

Table 4.6
Literate language features: examples of all the –ly adverbs used in terms of type/function of adverb

Function of *–ly* adverb	Groups		
	Grade R (n=20) (5-6 years)	Grade 1 (n=20) (6-7 years)	Grade 3 (n=22) (8½ -9½ years)
Time	suddenly (n=1)	suddenly (n=1)	suddenly (n=4) finally (n=1)
Manner		quickly (n=2)	quickly (n=2) slowly (n=1) nicely (n=1)
Degree	really (n=1) actually (n=1)		

From the results it can be seen that few children in Grade R and Grade 1 made use of adverbs in their generated narratives. Although not significant, there was a small increase in the use of adverbs in Grade 3. It was interesting to note that although only three participants in Grade R used *–ly* adverbs, the preferred choice was those indicating time and degree. Participants in Grade 1 used adverbs indicating time and manner. Grade 3s showed similar preferences, but more variety.

It was expected that there would be an increase in the use of adverbs with age (Scott, 1988b), however Scott (1984) and Greenhalgh and Strong (2001) reported that adverbs are rarely used in all age groups and development is very slowly into adulthood. Following Greenhalgh and Strong (2001), for the purpose of this study, only *–ly* adverbs were identified as this convenient and easy way is routinely used in research.

4.3.2 Elaboration of noun phrases

Are there differences between the three age groups in terms of elaboration of noun phrases?

There was a significant increase in the use of ENPs between Grade R and Grade 1 and this was confirmed with Fisher LSD post hoc tests $F(2, 59) = 3.7571$, $p = .01$. There was no significant increase in use in Grade 3.

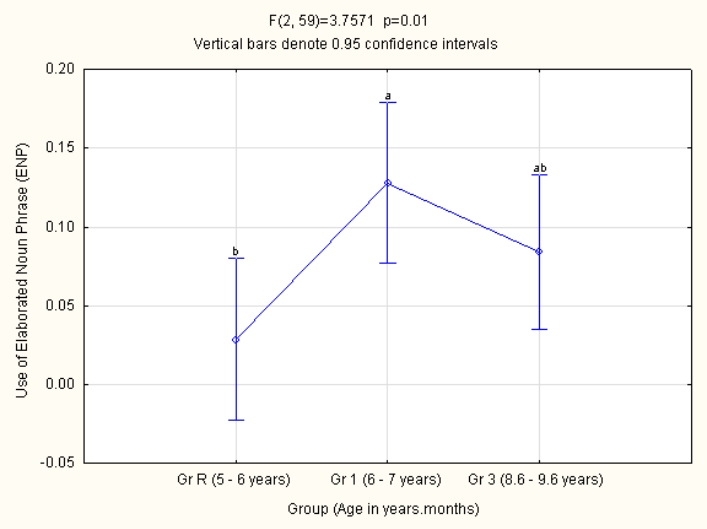

Figure 4.9 Means per group for use of elaborated noun phrase. Letters *a* and *b* indicate significant differences on a 5% level for Fisher LSD post hoc tests.

Examples of elaborated noun phrases used by the participants include:

(22) *so they gave them a big, fat bone.*
(Participant C001, Grade 3)

(23) *they both went to sleep in their nice warm bed*
(Participant B002, Grade 1)

(24) *the mom said: come in both of you two.*
(Participant C012, Grade 3)

Owens (2010) stated that 5 year olds use no more than one modifier with each noun, thus most internal development of the noun phrase occurs in later childhood and adolescence. A possible explanation for the significant increase in the use of ENP could be the fact that children are more exposed to formal language in Grade 1 and therefore start using ENPs more. Owens further states that most elaborated forms usually are produced in written language and this could explain the fact that further significant development was not observed.

4.3.3 Mental/linguistic verbs

Are there differences between the three age groups in terms of the use of mental and linguistic verbs in their narratives?

Although there were no significant differences in the number of M/L verbs used per T-units amongst any of the three groups, most participants (80% in Grade R, 85% in Grade 1 and 82%

in Grade 3) did use M/L verbs. Typical mental verbs used by participants in all age groups include, *thought* and *decided*. Typical linguistic verbs used include *said, called, asked, told* and *shout*.

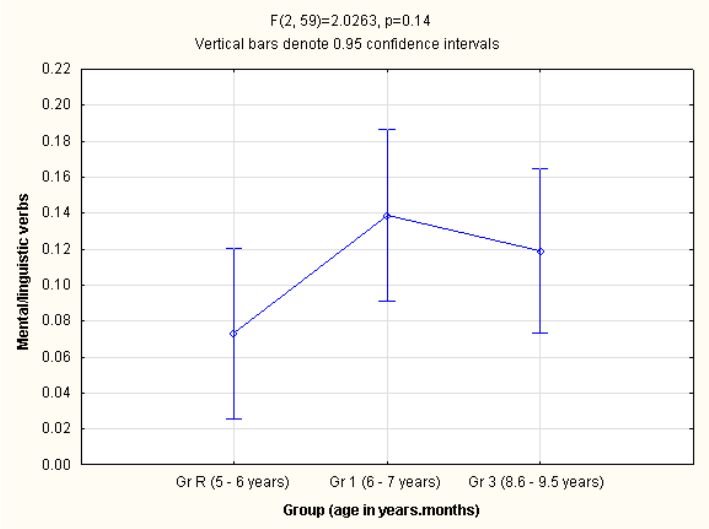

Figure 4.10 Means per group for mental/linguistic verbs used per T-unit.

Results therefore suggests that children as young as 5 use mental and linguistic verbs to link sequential events by referring to mental and emotional states and behaviours. This is supported by findings in research done by Kemper and Edwards (1986). However, Bamberg and Damrad-Fye (1991) found no significant difference in the frequency of evaluative utterances used between a group of 5 and 10 year olds, although the type of comments did change. They further found that adults use twice as many evaluative comments (this includes amongst other, M/L verbs) than 9 year olds and three times as many as 5 year olds. Five year olds were found to make use of all devices equally (this includes frames of mind, character speech, hedges, negative comments and causal connectives). Frames of mind (M/L verbs) are preferred by the 9 year olds and adults. Current results support the finding that there was no significant increase in the use of M/L verbs after the age of five.

However, Bishop and Donlan (2005) relate the development of syntax to the use of “mental statements” by declaring: “Syntax shapes thought” (p. 26). In this they agree with Shiro (2003) that there is an increased use of M/L verbs with age (and/or the development of syntax). One could therefore have expected an increase in the use of M/L verbs with the significant increase in syntactic complexity in Grade 3. One could speculate that the use of M/L verbs in Grade R was higher than it might have been expected. A possible explanation for this could be a stimulus factor. The pictures used for eliciting the narratives are very clear in terms of facial expressions and therefore emotions of characters. This could have aided the younger participants in commenting on reactions of characters or on goals achieved. It would be interesting to compare their narratives with stories generated with different or without picture stimuli. Another possible

explanation could be a group factor. All participants were selected from schools in higher social-economical areas and pre-primary schools were most probably responsible for high quality education, which would include introduction to formal language. These children are also most probably exposed to more books and reading at home than their peers in lower socio-economic areas causing them to perform above expectations on the assessments done.

Summary of the results for use of literate language features

Aim 3: To examine the differences between participants' narratives in the three age groups in terms of literate language usage.

In summary results suggests that there is very little development between age 5 years and 9 years and 6 months in terms of the use of the literate language features investigated. Few participants (< 36%) under the age of 9 years 6 months used *–ly* adverbs. Although children as young as 5 years old used two or more modifiers with nouns to elaborate noun phrases and are using mental and linguistic verbs in their generated narrative, there is no significant development in these skills at least up to the age of 9 years 6 months.

4.4 CONTENT SCALES

Aim 4: To examine the differences between participants' narratives in the three age groups in terms of the ratio between abstractions and picture facts included in their narratives.

In order to accomplish this aim, the abstract/concrete ratio for each narrative was determined. T-units were judged in terms of the following criteria: labels, picture facts, abstractions or nonsense. The totals of each criterion were calculated and divided by the total number of T-units of the narrative to correct for narrative length. The total number of abstracts per T-units was divided by the sum of the labels per T-units and picture facts per T-units and presented as the abstract-concrete ratio. Table 4.7 provides a description of the mean percentage scores for abstract-concrete ratio.

Table 4.7
Content: Summary of the means, ranges and standard deviations per group for abstract-concrete index.

Content scale	Groups								
	Grade R (n=20) (5-6 years)			Grade 1 (n=20) (6-7 years)			Grade 3 (n=22) (9½ -9½ years)		
	Mean	Range	SD	Mean	Range	SD	Mean	Range	SD
Abstract / concrete ratio	2.53	0.18-16.25	3.76	4.08	1.22-17.24	3.61	3.22	1.46-9.23	2

4.4.1 Abstractions per T units

Is there a difference in the abstract-concrete ratio in the narratives among the different age groups?

None of the participants in Grade 1 or Grade 3 used labels in their narratives, with only four in Grade R naming pictures without relating them to the story.

Examples of labels used, includes:

(25) *Mommy was there* (pointing to picture)
And sister was there (pointing to picture)
There was doggy there (pointing to picture)
(Participant A006, Grade R)

All of the participants in all of the groups used picture facts and abstractions in their narratives. Picture facts relate to observable actions, properties and circumstances and examples include:

(26) *the son had a bike*
and was polishing the bike, while the girl was playing with her doll
(Participant C004, Grade 3)

(27) *the dog came to bed with them and slept on the mat*
(Participant C019, Grade 3)

Abstractions refer to the use of proper names, relationships, specification of time, non-observable circumstances, thoughts or feelings and appropriate direct/indirect speech. Examples include:

(28) *Tim had a sister and a dog*
the dog's name was Rex

his mom said: no, no Rex, you shouldn't bark like that
(Use of proper names and relationships and direct speech: Participant C001, Grade 3)

(29) *the sister was walking very slowly because she was tired*
(Mention non-observable circumstances: Participant C020, Grade 3)

(30) *the dog heard something*
he thought: what could it be?
(Non-observable circumstances and thoughts: Participant C022, Grade 3)

As depicted in figure 4.11 ANOVA measures and Fisher least significant differences (LSD) test post hoc analyses indicated no significant differences between groups, in terms of the abstract-concrete ratio in their generated narratives, $F(2,59) = 1.1813$, $p = 0.31$.

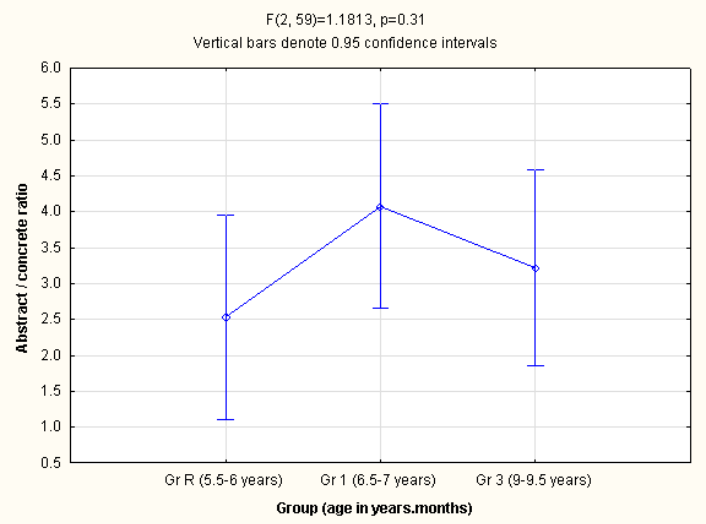

Figure 4.11 Means per group for abstract-concrete ratio.

Results suggest that normally developing 5 year olds rarely use labelling when generating narratives and that they frequently make use of abstractions. There was no significant difference between any of the groups in terms of the number of abstracts used per T-unit. One could therefore speculate that abstraction is developed by the age of 5 years and further, if any development only occurs after the age of 9 years 6 months.

Summary of the results for content use

Aim 4: To examine the differences between participants' narratives in the three age groups in terms of the ratio between abstractions and picture facts included in their narratives.

In summary, the results suggest that children as young as 5 years do make use of abstractions in their generated narratives. There is however no significant developmental change in the frequency of abstractions used between the ages of 5 years and 9 years 6 months.

The trajectories in narrative development, in terms of all the variables investigated, are illustrated in table 4.8. A change in shading depicts a significant developmental change with age.

Table 4.8

A summary of the differences and developmental trajectories found in the narrative development of 5 year old to 9 year 6 month old normally developing children, using a wordless picture book.

Narrative Variable	Grade R 5 – 6 years old	Grade 1 6 – 7 years old	Grade 3 8 ½ - 9 ½ years old
MACROSTRUCTURE			
Story complexity	Incomplete (35%) or complete episodes (30%)	Complete episodes (35%) and complex narratives (35%)	Complex narrative (72.73%)
Story grammars			
Setting	55%	88%	100%
Initiating event	90%	90%	100%
Internal response	50%	65%	68%
Internal Plan	20%	20%	18%
Attempt	90%	100%	100%
Direct consequence	90%	100%	100%
Reaction	40%	85%	90%
Story conventions			
Formal opening	10%	35%	77%
Formal closing	10%	30%	36%
MICROSTRUCTURE			
Productivity	Similar story lengths (no significant difference in terms of TNW or TNT)		
Syntactic Complexity			
Mean length of T-unit	Grade R = 5.69	Grade 1 = 5.95	Grade 3 = 6.68
A5LT	Grade R = 9.45	Grade 1 = 9.71	Grade 3 = 11.26
Use of subordination	Grade R = 0.07 (mean use/T-unit)	Grade 1 = 0.04	Grade 3 = 0.12
Lexical Diversity			
NDW	Grade R = 2.74	Grade 1 = 2.97	Grade 3 = 3.32
TTR	Grade R = 4.04	Grade 1 = 4.15	Grade 3 = 4.51
Literate language			
Use of adverbs	20%	15%	38%
Use of ENP	Grade R = 0.03 (mean use/T-unit)	Grade 1 = 0.13	Grade 3 = 0.08
Use of M/L verbs	Grade R = 0.07 (mean use/T-unit	Grade 1 = 0.14	Grade 3 = 0.12
Content			
Abstraction	Grade R = 2.53 (con/abs ratio)	Grade 1 = 4.08	Grade 3 = 3.22

Note: A change in shading depicts a significant developmental change with age in terms of the specific variable.

4.5 OTHER INTERESTING OBSERVATIONS

Only three narratives, from a grand total of 62, were presented in the first person. Examples from these narratives will now be presented.

(31) *I'm finished*
go sleep
I'm sleeping
I'm happy
I'm very mad
I'm telling you t be quiet

I'm riding on a bike
I'm going to give the bone so he wouldn't bite me
(Participant A012 in Grade R; Story complexity: Action sequence)
Other information: Afrikaans and English as home language, history of middle ear infections, no concerns regarding scholastic progress according to teacher, language development was within normal limits according to parents but TACL-R and PPVT scores were below average.

(32) *my dog is sleeping*
but you mustn't touch him otherwise he will wake up
dog, don't go after him otherwise he will fall
but the dog just ran

then the people called the polices
the polices waited to come
then they come
thank you polices
here doggie
(Participant A014, in Grade R; Story complexity: Abbreviated episodes)
Other information: English spoken as home language, no reported concerns regarding language development and school progress, formal language assessment showed results within normal limits, no use of referencing.

(33) *one day me, my mom and my sister and my dog was standing outside*
my mom was hanging up the washing
and my sister was playing with her doll

me and my sister were tired
suddenly mom saw a baddy outside
the dog barked
I said: shhhh
my mom phoned the police
I was holding the dog
the police captured the baddy
they said: bye
he was happy that he got his bicycle back
(Participant C012, in Grade 3; Story complexity: narrative)

Other information: English is spoken as home language, history of middle ear infections, but no concerns reported regarding language development and scholastic progress. Below average language assessment results.

As these examples include children in Grade R and Grade 3 as well as significantly different narrative developmental levels (including action sequence, abbreviated episodes and complex narrative) with no notable general developmental outfalls from the case histories, it is difficult to speculate the reason as to why the narrative was generated in the first person.

Only one participant presented the generated narrative in the present tense. It is therefore not possible to investigate possible patterns or speculate about reasons for the choice.

(34) *the dog hears a sudden noise*
but they are still sleeping
the dog is barking and barking
the mother says: don't bark
the sister says: I can't stand that noise
but then the mom sees a robber taking the bike
and the dog growls
and the boy says: shh
and then the mom phones someone
the children are scared
(Participant C005, in Grade 3; Story complexity: abbreviated episodes)
Other information: Only English is spoken as home language, no reported concerns regarding language development or scholastic progress. Below average formal language assessment results. Very animated while telling the story.

Only two participants named the story

(35) *Happy endings*
(Participant A001, in Grade R; Story complexity: Abbreviated episodes)

(39) *The day of the stolen bicycle*
(Participant C004, in Grade 3; Story complexity: True narrative)
Note that the name of the story, *The day the bicycle was stolen,* is printed on the front cover of the book and by Grade 3 children should be able to read this.)

Four of the participants in Grade 1 were noted to have produced their narratives in a slow rhythmic style as typically seen in beginner readers. This is most probably due to their early exposure to reading in class and associating the generated story from a picture book with reading.

Five of the participants in Grade 3 were noted to be very animated while producing their narratives. Three of these stories were described as true narratives, one as abbreviated and one as complete episodes. Again it is hard to speculate as to the possible reasons for this, as there were no clear patterns observed, but with increased confidence in reading skills, the Grade 3s may be more confident in animating their story telling in contrast to the rhythmic reading patterns of the beginner readers.

5. CONCLUSIONS, CLINICAL IMPLICATIONS AND CRITICAL REFLECTIONS

The main research question which guided this study was: *What are the patterns of narrative development in normally developing children?* Findings will be summarised in terms of the group differences and developmental trajectories that were observed. It was assumed that the participants in the three identified groups (Grade R, Grade 1 and Grade 3) would display distinctive patterns of narrative development and that there would be an increase in the complexity of participants' narrative features with age based on their exposure to literate language.

In summary, the results suggested clear group differences and developmental patterns within the macrostructure of narratives across the groups. Microstructure showed no significant development in terms of productivity across the groups, but there was a significant increase in terms of complexity of language used in Grade 3. Lexical diversity gradually increased from Grade R to Grade 3. Even children in Grade R were found to use literate language in their narratives. The use of adverbs and M/L verbs were stable up to Grade 3. There was however significant development in the use of ENP in Grade 1. Content, in terms of the use of abstraction, remained stable over the three groups with children as young as 5 years using abstractions in their narratives.

5.1 GROUP DIFFERENCES: MAJOR FINDINGS

A total of 62 participants in three different age groups from mainstream schools situated in a middle class residential area in the northern suburbs of Cape Town, South Africa, were included in the study. All participants were exposed to English as medium for instruction in school, but only children exposed to English and/or Afrikaans as home language were accepted.

Although the subject sample was small, all three groups were compatible based on the mean standard scores of three formal language assessments, including the Test for Auditory Comprehension of Language (TACL) (Carrow-Woodfolk, 1985), Peabody Picture Vocabulary Test (PPVT) (Dunn & Dunn, 1981) and the Expressive Vocabulary Test (EVT) (Williams, 2007).

The considerable variation, with regards to all the productivity measurements, found within groups was not surprising and is well documented in the literature. As expected from normally

developing children, there were no significant group differences in terms of story length and therefore productivity can be viewed as a marker for SLI.

Most of the narratives generated by **Grade R** participants can be described as either incomplete (35%) or complete episodes (30%). The majority of the narratives (> 90%) contained an Initiating event (IE), Attempt (A) and Direct Consequence (DC). The use of Settings (S) and Internal Responses (IR) seems to emerge around this age, with about half of the participants' narratives (40 - 55%) containing these story grammars. Hardly any of the participants in Grade R used Response (R) or Internal Plan statements (IP) in their narratives. This finding concurs with those of previous studies in British and American study populations of the same age. The only significant difference found compared to results found in the literature, was the use of attempts (A) that was found to be well established in Grade R, but reported to be used by only 50% of this age group. A stimulus factor was described as a possible explanation for this whereby a description of observable actions could have been scored as a series of attempts (see section 4.1.1).

The story conventions investigated indicated that most participants in Grade R did not make use of formal opening or closing statements in their narratives. This supported findings in the literature that children only start using these markers at a mean age of 7 years and 8 months (Hemphill et al., 1991). However it was also found that appendages were hardly used by the Grade 3 group. A stimulus effect was offered as a possible explanation, whereby the narrator might find it unnecessary to use appendage within a shared context (see section 4.1.3).

The participants in Grade R's narratives were very similar to those of the Grade 1 group in terms of all the microstructural measures. Syntactic complexity (MLT, A5LT and subordination) and lexical diversity (TNW and TTR) were similar to that of the Grade 1 group, but as expected significantly lower than that of the Grade 3 group. This was not surprising as one can expect that with the use of more subordination, as demonstrated by the Grade 3 group, complexity and lexical diversity measures will also increase.

Literate language features (adverbs, ENP and M/L verbs) and content (abstract-concrete ratio) did not differ from those of the other two older groups. Based on normative findings in the literature, one could speculate that these findings in Grade R were higher than expected. A stimulus and group factor were described as possible explanations (see section 4.3.3).

In summary, there were no significant differences in terms of microstructure, use of literate language and abstractions between Grade R and Grade 1 normally developing children without

language problems from literate home and educational environments, when generating narratives from an appropriate elicitation stimulus.

The narratives of the majority of the participants in **Grade 1** can be described as complete episodes (35%) or true narratives (35%). By Grade 1 most of the participants are using S and R statements in their narratives. There was no significant increase in the use of IR, with still hardly any of the participants using IP. Although Liles (1993) and Westby (2005) suggest that children can tell entertaining stories by the age of 5, Liles (1993) and Owens (2010) found that the "ideal narrative structure" emerges around the age of 6 and continues to develop with age, and therefore findings in terms of macrostructure was expected. The use of formal closing statements emerged in the Grade 1 participants' narratives. This concurs with findings in the literature that the use of appendage emerges around the age of 7.

As described in the discussion of the results of the Grade R group, all aspects of microstructure investigated and displayed by the Grade 1 participants, were very similar to those exhibited by the Grade R group. It was speculated that the Grade R group most probably performed better than expected.

Literate language measures and content showed no significant difference in all three groups except for the use of ENP, which showed a significant increase from Grade R to Grade 1. This was expected from this group following their exposure to more formal language in the educational environment, however, considering the fact that the Grade R group might have been over-performing, it is difficult to explain why the use of ENP was the only measure manifesting as an expected increase in Grade 1.

Participants' narratives displayed a slow but steady development from Grade R to **Grade 3** in terms of structural complexity. By Grade 3 the majority of participants (72.72%) were producing complex narratives with all the story grammar components included, except for IP. This developmental pattern in narrative macrostructure was expected based on the correlation found in the literature between literacy and narrative skills. Although the Grade 3 participants are still not using opening statements, most of them (77.73%) were now using a formal closing statement. Findings were unexpected as Owens (2010) found that by the time children reach Grade 2, they not only use beginning and ending markers, but also evaluative markers, such as "that was a good one". The stimulus factor offered before could still be considered, but the significant increase in the use of specifically formal closing statements remains surprising. Grade 3's increased experience with books and improved reading skills could be considered as a factor, as this may have encouraged some of them to copy the use of appendage in their generated oral narratives.

From Grade R to Grade 3 a significant development in the microstructure elements of participants' narratives was observed. The language used in Grade 3 was more complex, with a significant increase in the syntactic complexity (MLT, A5LT and subordination) and lexical diversity. It is interesting to note that NDW and TTR measures (both calculated to correct for story length) did not correspond. As reported in previous studies, these measures seem to represent different aspects of language. NDW showed a significant increase from Grade R to Grade 3, with TTR showing a significant increase from Grade 1 to Grade 3.

The development of and correlation between syntactic complexity and lexical diversity was expected based on previously published findings. The fact that this was not reflected in an increase in story length was surprising but could be explained by Bamberg and Damrad-Frye's (1990) idea that shorter than expected narratives at age nine could be because this group restricts themselves to relevant story information.

There was no significant development in the use of literate language in Grade 3. Although this was unexpected based on research indicating developmental growth in all areas of literate language use, other reports showed that adverbs are rarely used in childhood and that it develop slowly into adulthood (Greenhalgh & Strong, 2001). Owens (2010) states that ENPs are produced mainly in written language and this could explain the non-significant increase in oral use of ENPs in this age group. Although Bamberg and Damberg-Frye (1990) found no significant change in the frequency of the use of evaluative comments from 5 to 10 years old, a shift towards the use of frames of mind (thus M/L verbs) was observed in the 9 year old and adult groups. It was therefore expected that this would reflect as an increase in the use of M/L verbs. The inclusion of these features by the younger participants may reflect their exposure to literacy and literate language in their home environments and educational settings. The nature of the stimuli, whereby younger participants could have been aided in commenting on reactions of characters on goals achieved (see section 4.3.3), was also offered as a possible explanation.

In summary, the majority of Grade R participants included abbreviated episodes in their narratives. Grade 1 participants' narratives were at the level of complete episodes with signs of the emergence of complex episodes. By Grade 3 most of the participants were able to produce complex narratives. Microstructural measures indicated similar levels of development between Grade R and Grade 1 groups whereas the Grade 3 group produced syntactically and lexically more complex language. No differences pertaining to literal language features and the use of abstraction were observed between groups.

5.2 DEVELOPMENTAL TRAJECTORIES

In terms of **macrostructure,** most Grade R participants used mainly abbreviated episodes in their narratives. The use of complex narratives emerged in Grade 1, possibly as a result of exposure to more formal language. By Grade 3 most participants produced complex narratives. The story grammar components IE, A and DC were well established in the narratives of the 6 year old participants. The use of S and R elements emerged in the Grade R groups' narratives and most of the Grade 1 and all the Grade 3 participants included these elements in their narratives. Results further suggested that IP is rarely used before the age of 9 years 6 months.

On a linguistic level, there was less development across the age groups than expected. There were no significant differences between the Grade R and Grade 1 groups in terms of **microstructural** development of their narratives, however significant growth was exhibited in all areas by the time children reach Grade 3. Although the story lengths for the Grade 3 group were similar to that of the younger groups, sentences were more complex and lexically more diverse.

In summary, the results indicated more pronounced developmental trajectories in the macrostructure than the microstructure of participants' narratives. It was assumed that participants in the three age groups would display distinct patterns of narrative development and that there would be a noticeable increase in all aspects of the participants' narrative features with age. Participants in Grade R however performed as well as those in Grade 1. Considering the fact that the Grade 1 participants came from the same home environments and pre-schools than the Grade R group, it can be suggested that time spent in formal education, one year in Grade 1 versus three years in grade 3, has a significant impact on narrative development in terms of macro- and microstructural measures.

5.3 CLINICAL IMPLICATIONS

The use of narratives in the assessment and intervention of communication skills has become a routinely used procedure in the field of speech-language therapy. However, there are very few specially designed assessment tools available for use in the clinical context. None of the narrative measures found in normally developing children correlated with the formal assessment results. This finding underscored the importance of measuring beyond the sentence level in the assessment of children with possible language learning difficulties.

In order to know what is atypical, one has to know what is normal. Different norms are needed for speakers from different cultural and socio-economic backgrounds, even when they speak the same language (Hegde, 2003). A clear hierarchical level of narrative development, as well as

specific structural patterns in stories told by children, has been identified in British and American study populations and these seem to be governed by culturally specific rules. Normative data for communication development within the South African context is almost non-existent. Lacking norms create problems when attempting to make clinical judgments for evaluation and treatment.

This study contributes to information on the developmental patterns of micro- and macrostructures in the narratives of normally developing children. Patterns found at different age levels support a developmental trajectory within narratives. Due to the small sample size and other limitations no claims are made regarding norms, but the clear developmental trends can be used to inform clinical practice. Results found in assessing narratives, mindful of age, culture and normal variation, should be registered to indicate a child at risk for reading problems.

Due to the complex nature of skills required to produce a narrative, researchers often focus only on specific aspects of narrative development and this could result in limitations when interpreting and comparing results. There is no single standardised assessment protocol to assess the full variety of variables within narrative development. For the current study a single narrative assessment tool was designed aiming to give an overview of narrative development in children. A wordless picture book is a structured way by which to elicit generated narratives and was selected and designed to bring forth and assess the macro- and microstructures as well as literate language and content used within narratives. The picture book was professionally illustrated using a story line that is appropriate for the South African context. The protocol is not only useful to obtain an overview of the narratives of children, but it could also be used to assess specific components of narrative development. The narrative obtained is a language sample that could be used for even more macro- or microstructural features, such as referencing, evaluations and many more.

5.4 LIMITATIONS

Theoretically normative data should be established on randomly selected participants who are representative of the South African population. The sample size of the population and sample should typically be cross sectional with a specific number of participants drawn from each age level. Unless the sample is representative, conclusions cannot be extended to all the children in the population, and therefore: *What might be “normal” for one group might not be so for another.*

The targeted participants were chosen from only three specific mainstream schools in a middle class residential area in the Northern suburbs of Cape Town. It is therefore not a representative sampling of the school-aged population in South Africa. Furthermore, the considerable variability

in the literacy practices of different cultural and socio-economic groups in a diverse society such as South Africa, as discussed by Klop (2011), should presumably have major implications for the level of formal language exposure within different mainstream schools.

The fact that narrative discourse in bilingual children were found to be different from that of monolingual children (Fiestas & Peña, 2004), should raise questions regarding the suitability of including both monolingual and bilingual (English/Afrikaans) children in the study. However, most South African children are exposed to bilingualism and it may be difficult, or even inappropriate, to correct for this.

Due to the small sample size the opportunity to identify differences as regards some of the variables might have been missed. One should also be cautious to view age as an independent variable. Group differences are often assumed to be caused by age and in the process, other factors might be missed. Brown (1973 cited in Hegde 2003) suggests that “repeated and more intensive observation of small numbers of children may produce data that are more applicable to individual cases” (p. 161), and thus the results generated by this study should not be viewed as in vain.

The sampling process also implies limitations. High internal validity was achieved because a single narrative sample was used for all the narrative measures. However the cross-sectional design, whereby participants were given a single opportunity with only a wordless picture book to produce specific narrative behaviours, makes reliability doubtful. Additional narratives elicited by more stimuli (e.g. story retell or personal narratives) may have provided more in-depth insight into the development of narratives. Gutiérrez-Clellen (2001) suggests that a dynamic assessment approach would provide more information about the true abilities of children from culturally and linguistically diverse backgrounds.

Although it was the aim of this study to investigate narrative development, not all areas within the scope of narrative development were examined. Further assessment areas that could be integrated in terms of literate language features include conjunctions (temporal, causal, coordinating and subordinating) and elaboration within ENP (noun modifiers, noun qualifiers, appositives and relative clauses and noun phrase post modification). Within the use of M/L verbs one could specify mental or linguistic verbs. Although cohesive devices are indirectly assessed by certain quantitative measures, these were not specifically targeted. Cohesive devices are linguistically connecting components within narratives and include: reference (e.g. pronouns, definite articles, demonstratives and comparatives), substitution and ellipsis, conjunctions and lexical items.

Content measures were limited to the abstract-concrete ratio. Abstractions could be investigated in terms of proper names used, relationships and personality attributes throughout the narrative (Owens 2010).

Evaluations have been described as the most frequently used elaboration in narratives by age 9 and increase with age. Evaluations could be investigated in all five categories as identified by Owens (2010), including:

- specific adjectives and adverbs used as modifiers,
- expressions (which are multiword modifiers),
- repetition of nouns, adjectives or verbs for effect,
- internal state words (specified in terms of whether they reflect thoughts, feelings, reactions, intentions or physical states) and
- dialogue.

The stimulus material could also have had an influence on results. All variables targeted were elicited using the wordless picture book. It is not apparent whether the clear illustration of emotions in the pictures created an unfair stimulus advantage (in terms of eliciting mental and linguistic verbs and internal responses from participants) or if these detailed illustrations could be viewed as an advantage of the stimulus pictures.

5.5 CONCLUDING REMARKS

The main aim of the study was to investigate the patterns in the development of narratives in normally developing children between the ages of 5 years and 9 years and 6 months. A single assessment protocol, covering a range of important parameters included in a comprehensive analysis of the narrative skills of children, was developed and used for this purpose.

The main research question was: *What are the patterns of narrative development in normally developing children?*

In summary, although the results showed less variance in terms of microstructural measures, they indicated group differences and clear developmental patterns for narrative macrostructure and microstructure across the different age groups. This study yielded valuable information about developmental patterns that could be used as guidelines in identifying potential communication and reading problems and to direct intervention.

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APPENDIX 1

Standard Screening Questionnaire

Dear Parent/Legal Guardian,
Thank you for agreeing for you child to take part in the research project. Could you please take a few minutes to complete this short questionnaire on your child's background as a way to confirm that s/he adheres to the selection criteria set for the subject group to be included in this project. Your child's class teacher will also be asked a few questions regarding his/her general progress in school. Please return it within 3 working days.

Child Case History Form

General Information

Child's name: _____ Date of birth: _____

Address: _____

Phone: _____

Mother's occupation: _____ Work tel: _____

Father's occupation: _____ Work tel: _____

What languages does your child speak? _____

What is his/her primary language? _____

What languages are spoken in the home? _____

What is the primary language spoken? _____

With whom does the child spend most of his/her time? _____

What is the primary language spoken by the above-mentioned person/people? _____

Are you or anybody in your family worried by your child's speech or language development? _____

If "yes", describe the concern _____

Has your child ever been seen by a speech-language therapist? Who and when? _____

What were their conclusions or suggestions? _____

_____

Have any other specialists (physicians, psychologist, special education teachers, etc.) seen your child? _____

If yes, indicate the type of specialist, when the child was seen and the specialist's conclusions or suggestions.

_____

_____

Prenatal and Birth History

Were there any problems during pregnancy or the birth of your child? _____

_____

Medical History

Provide the approximate ages at which your child suffered the following illnesses and conditions:

Encephalitis _____ Meningitis _____ Ear infections _____

High Fever _____ Seizures _____ Draining ear _____

Convulsions _____ Headaches _____ Other _____

Has your child had any surgeries? If yes, what type and when? _____

Describe any major accidents of hospitalisations. _____

Is your child taking any medications? If yes, identify. _____

Developmental History

Provide the approximate age at which your child began to do the following activities:

Crawl _____ Sit _____ Stand _____

Walk _____ Feed self _____ Dress self _____

Use toilet _____

Use single words (e.g. no, mommy, doggie, etc.) _____

Combine words (e.g. me go, daddy shoe, etc.) _____

Name simple objects (e.g. dog, car, tree, etc.) _____

Use simple questions (e.g. Where's doggy? etc.) _____

Engage in conversation: _____

Does your child have difficulty walking, running or participation in other activities, which require small or large muscle coordination? _____

Are there or have there ever been any feeding problems (e.g. problems with sucking, swallowing, drooling, chewing, etc.? If yes, describe. _____

Educational History

School: _____ Grade: _____

Teacher(s): _____

How is the child doing academically (or pre-academically)? _____

Does the child receive special services? If yes, describe. _____

How does the child interact with others (e.g. shy, aggressive, uncooperative, etc.)? _____

Person completing the form: _____

Relationship to child: _____

Signed: _____ Date: _____

Relevant remarks from teacher (to be completed by researcher)

_____

_____

_____

_____

_____

To be completed by researcher

Adhering to selection criteria? **YES** **NO**

Comments:

_____

_____

_____

Based on the Child Case History form by Shipley and McAfee (1992)

APPENDIX 2

Wordless Picture Book

The illustrations are presented in a familiar book form, with a front and back cover as well as index page.

Front and back covers of the Wordless Picture Book.

GUIDELINES FOR PROMPTING

If the child has limited language or does not understand what is required, prompts may be used. These should be transcribed and totaled on the summary form.

Listening to the child – do's and don'ts

- ✓ Do give neutral responses, e.g. oh, really, wow, oh no!
- ✓ Do make supportive comment, e.g. good, well done
- ✓ Do respond to the child's story with appropriate facial expressions
- ✓ Do seek clarification, if required.
- ✓ Do repeat a child's utterance if this will help the transcription later, as long as it does not interrupt the flow of the child's telling of the story.
- × Don't get drawn into an interaction with child.
- × Don't ask yes/no questions – this results in minimal response
- × Don't ask direct questions about eh story – this does not help the child tell a story
- × Don' make personal contributions, e.g. I've been camping
- × Don' jump in too quickly to fill a child's pause.

(Starczewski, H. & Lloyd-Richmond, H., 2002)

Illustrations

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APPENDIX 3

Narrative Assessment Protocol: Instructions for transcription, pruning and segmentation

PREPARING THE DATA FOR ANALYSES

1. VERBATIM TRANSCRIPTION

Make a verbatim transcription of all the words uttered by the child. This should include word repetitions and self-corrections. Also note everything the test user said. This should be documented in italics and in brackets and will not form part of productivity and complexity counts.

Deviant articulation should be normalised (a comment could be made under "transcription notes" on the score sheet). If a child stutters or stammers, the narrative can be transcribed as if s/he had spoken fluently. Again comments can be noted on the score sheet.

- **Unintelligible utterances** should be marked: ?_____

- In the early stages of narrative skills development it is common for a child to use **pointing** while commenting. Identify the character or object being pointed to as it can be used in the analysis. Example: **pt (dog)** ***happy***

- **Pauses** could be marked as: **…**

Remarks could be made on pre-literacy skills observed, for example book awareness skills.

2. "PRUNING" THE TEXT

All words or phrases not involved in the complexity and productivity analysis should be eliminated (mark by striking through the text). Examples:

- Self-correction (**sentence structure correction**):

  ~~They were…~~ then they saw a robber outside

- Self-correction (**choice-of-word correction**)

  And the mom is ~~cleaning…~~ putting out the clothes

- **Phrase, word** and **part-word repetitions**:

  And the mom ~~and the mom said~~: "Go to your room"

  And the ~~and the~~ boy fell off his bike

  Mommy hung ~~the wash…~~ the washing on the line

- **Dialogues regarding** the **procedure or story**

  If a ***dialogue*** occurs ***regarding the story***, but does not directly relate to the story line, the utterances are deleted and ignored.

  ~~***I've got Rottweillers.***~~

  If a ***dialogue*** occurs ***regarding the procedure***, the utterances are deleted and ignored. Example:

  ~~***I don't know how to read this. Can you read this part to me?***~~

- **Interruptions**

  If the tester interrupts the child, resulting in an incomplete utterance, this should be deleted and ignored

  ~~***The boy wanted to ride …***~~

  (T: Oh, I think we have missed a page)

  The dog was running after the boy.

- **Incomplete sentences**

  Single words or phrases (utterances without a verb) should be deleted and counted as "incomplete" or "unusable" T-units.

  ~~***Big dog***~~

  ~~***tired***~~

- **Fillers** (Example: ***ah-h, uhm***)

- In the word count, all of these **deleted words** should not be counted but **ignored**.

- In **doubtful cases**, the child should be given the **benefit of the doubt**. Example:

  Then someone… their mother saw something

  The phrase "their mother" could be regarded either as a choice-of word correction or an extension, depending on intonation and pauses. The only criterion should be whether what is said is grammatically acceptable or not.

- **Incomplete utterances** are **not excluded** in the analysis. These include reasonable complete utterances where only one or two words were omitted and followed by an utterance as though they had been completed.

3. SEGMENTATION

Utterances should now be segmented into standard units in their shortest allowable form. Hunt (1970) described "minimal terminal units" (**T-units**) as a unit which is used when measuring the expressive syntax of older children's language. The T-unit usually consists of a main clause and any attached or embedded subordinate clause or phrase. Co-ordinate clauses are therefore T-units themselves, while subordinate clauses form part of a T-unit. The number of T-units will therefore largely increase as a result of increasing use of subordinate clauses.

Each T-units should be written in a separate line and numbered.

Coordinated clauses

- **Coordinate clauses** are treated as T-units themselves.

  The girl was playing with her doll and the mommy was hanging up the washing (2 T-units)

The connectives ***and***, ***then*** and ***and then*** qualify for segmentation marks, because it cannot be determined if they are being used in their logical sense or merely to keep the narrative going.

If two T-units are joined by a coordinating conjunction, a line should be drawn through the conjunction. The conjunction will only be counted once when productivity scales are calculated.

The boy is cleaning his bike and the girl is playing with her doll (2 T-units)
The dog woke up then he barked then the children woke up (3 T-units)
The mommy woke up and then she phoned the police 2 T-units)

Examples of coordinate conjunctions:

The boy took the bike in and closed the door. (1 T-unit)
He is a small boy, but he's not scared of anything. 2 T-units)

Note the following cases **where *and* does not qualify for a segmentation mark**:

When it does not fall between two T-units:

The boy and the girl were riding on the bicycle.

When a verb is repeated for stylistic effect:

The boy cried and cried and cried.

When a single action is expressed by two verbs:

He sat and cried.

When conjunction-reduction occurs:

The boy picked his bicycle up and packed it away. (1 T-unit)
The girl took her doll and went outside. (1 T-unit)

Without conjunction-reduction, these above utterances would both have to be segmented into two T-units.

The boy picked his bicycle up and he packed it away. (2 T-units)
The girl took her doll and she went outside. (2 T-units)

Subordinate clauses

- **Subordinate clauses** form part of a T-unit.

Examples of subordinate conjunctions:

While the boy was cleaning his bike, the girl was playing with her doll. (1 T-unit)
The dog looked out of the window, while mother phone the police. (1 T-unit)
They got up, although they did not know what the dog was barking at. (1 T-unit)
When they looked outside, they saw the bike was gone. (1 T-unit)
If he was outside, he would have bitten him. (1 T-unit)

- In cases of **direct and indirect speech**, the "***she says***" part and what was said together form a T-unit, except of course when what was said consists of more than one T-unit. Example:

  Mother said: No you should not bark like that! (1 T-unit)

  Stop barking, she said, they will wake up! (2 T-units)

- **A question** is counted as a T-unit, except when more than one question is joined by a coordinating conjunction.

  What was that? (1 T-unit)

  Are you coming inside, or do you want to play some more? (2 T-units)

- **An imperative** is counted as a T-unit, except when more then one imperative is joined by a coordinating conjunction.

  Go and wash your hands. (1 T-unit)

  Go and wash your hands and go to your room. (2 T-units)

Refer to Appendix 10 for an example on transcribing, pruning and segmenting a narrative.

Based on Vorster (1980)

APPENDIX 4

Narrative Assessment Protocol: Summary Sheet

NARRATIVE ASSESSMENT PROTOCOL: SUMMARY SHEET

Relevant information referring to selection criteria or history:

Standard scores of language Ax TACL: _____ PPVT: _____ AGS: _____

Home language: _____ Medical History: _____

Scholastic progress: _____ Other special services: _____

Speech/language development: _____

Transcription Notes:

_____

_____

Total number of complete T-units → **T-units**

Total number of incomplete/unusable T-units → **# T-units**

Total number of words → **TNW**

TNW ÷ T-units = **MLT-W**

Tot no words in 5 longest T-units ÷ 5 = **A5LT**

Total number of different words → **NDW**

NDW ÷ √(TNW) x 2 = **Type-token ration**

Story grammar	**Present? Y/N**
Setting	
Initiating events	
Internal response	
Internal Plans	
Attempts	
Direct Consequence	
Reactions	

Narrative Level

No of mental/linguistic verbs T-units **Mental/ling verb/T-unit**

÷ = **Formal opening (Y/N)**

Narrative device: Formal opening present?

Formal closing (Y/N)

Narrative device: Formal closing present?

Total number of labels T-units **Labels/T-unit**

Total number of picture facts T-units **Picture facts/T-unit**

Total number of abstractions T-units **Abstr./T-unit**

Total number of nonsense T-units **Nonsense/T-unit**

Abstrac./T-unit ÷ Labels/T-unit + Pic. fact/T-unit = **Abstract-Concrete Index**

Total number of –ly adverbs = **Adverbs present? Y/N**

Total no. noun modifiers used + Total no. of qualifiers used = **Total no ENP used**

Total ENP used T-units **ENP/T-units**

Total coordinating conjunctions used T-units **COORD**

Total subordinating conjunctions T-units **SUBORD**

Imbedded clauses T-units **IMBEDDED**

APPENDIX 5

Macrostructure: Scoring, definitions and examples of story grammars

STORY GRAMMAR

1. Identify story grammar statements

- **Specify** each T-unit as a story **grammar category.**

- Credit should not be given to utterances which are not linked to the story, thus be careful not to consider pure "picture naming" as story grammar. Always **consider** an **utterance as part of an episode**. Examples:

  I see a mommy, a boy, a girl and a dog.

  The dog is sleeping.

  Then the boy stokes the dog.

  None of these utterances should be credited as a statement regarding "Setting" as they are not linked to the rest of the story.

- **Definitions and examples of story grammar categories** based on Stein and Glenn (1979).

  Setting statements (S): Introduction of main characters, as well as the time and place for the story action. Opening (***once upon a time***) and closing statements (***the end***) are recognized as a setting statement. There could be a description of habitual actions, along with the social, physical and/or temporal context for the story.

  Initiating events (IE): An action or happening that sets up a problem or dilemma for the story. It is often something that happens to upset the setting and it causes the main character to react in some way. Examples can include natural occurrences (***rain***) or physical states (***hunger*** or ***tiredness***), internal events (***mommy thought to phone the police***) or an action of a character in the story (***the dog barked and woke up the children***).

  Internal Response (IR): Describes the characters' reactions, such as emotional responses, thoughts, or intentions, to the initiating events. The main function of an IR is to motivate the main character to take action to achieve a goal. Examples may include: affective response (***the girl cried***), cognition (***she noticed someone outside***) or a specific goal the character has in mind (***mommy thought to phone the police to come and arrest the baddie***).

  Internal Plan (IP): Indicates the characters' strategies for attaining their goals as well as the characters' thoughts on the situation. Children rarely include this element.

Attempts (A): An action or plan of the protagonist to solve the problem. The main function is to bring about a consequence.

Direct Consequence (DC): Signifies whether the character succeeds in attaining the goal and describes the result of the action in terms of the character's success or failure in attaining the goal(s)***.*** Examples include a positive outcome or natural occurrence (***the police came and took the robber to jail***).

Reactions (R): Describe the character's feelings about achieving a goal. This may included emotional responses (***he was so happy he got his bike back***), thoughts and actions (***he brought his bike in and never left it outside again***)

2. Complete the Narrative Assessment Protocol: Summary sheet

All the story grammars are marked on the **summary sheet** as being present or absent.

Based on Stein and Glenn (1979)

APPENDIX 6

Macrostructure: Scoring, definitions and examples of narrative levels

NARRATIVE LEVELS

1. Identify story sequences and episodes

Narrative levels reflect the structural relationship of the different parts within the narrative to the narrative as a whole. Once story grammars have been identified, narratives are divided into **sequences** (non-goal-based) or **episodes** (goal-based).

2. Determine the highest level achieved within every narrative

The highest level of narrative structural complexity displayed by each participant is determined by a binary decision tree based on that of Westby (2005)**.** Structural analyses categorise the participants' narratives into sequences, abbreviated episodes or complete episodes based on the inclusion of propositions denoting goal-directed behaviour of characters. An episode schema consists of a problem faced by a character, followed by plan and action (or goal) to solve the problem, followed by an outcome or consequence (failure or success in attaining the goal).

- The **binary decision tree** (illustrated on the next page) should be used to decide on the most appropriate **developmental level** for episodes.

- Each **developmental level should be assigned a value** and each participant should be scored on the **highest level achieved** in his/her specific generated narrative. In other words, a narrative might for example contain sequences, but should the use of episodes be emerging or used, the participant should be scored for the episode use (thus, the highest narrative level used).

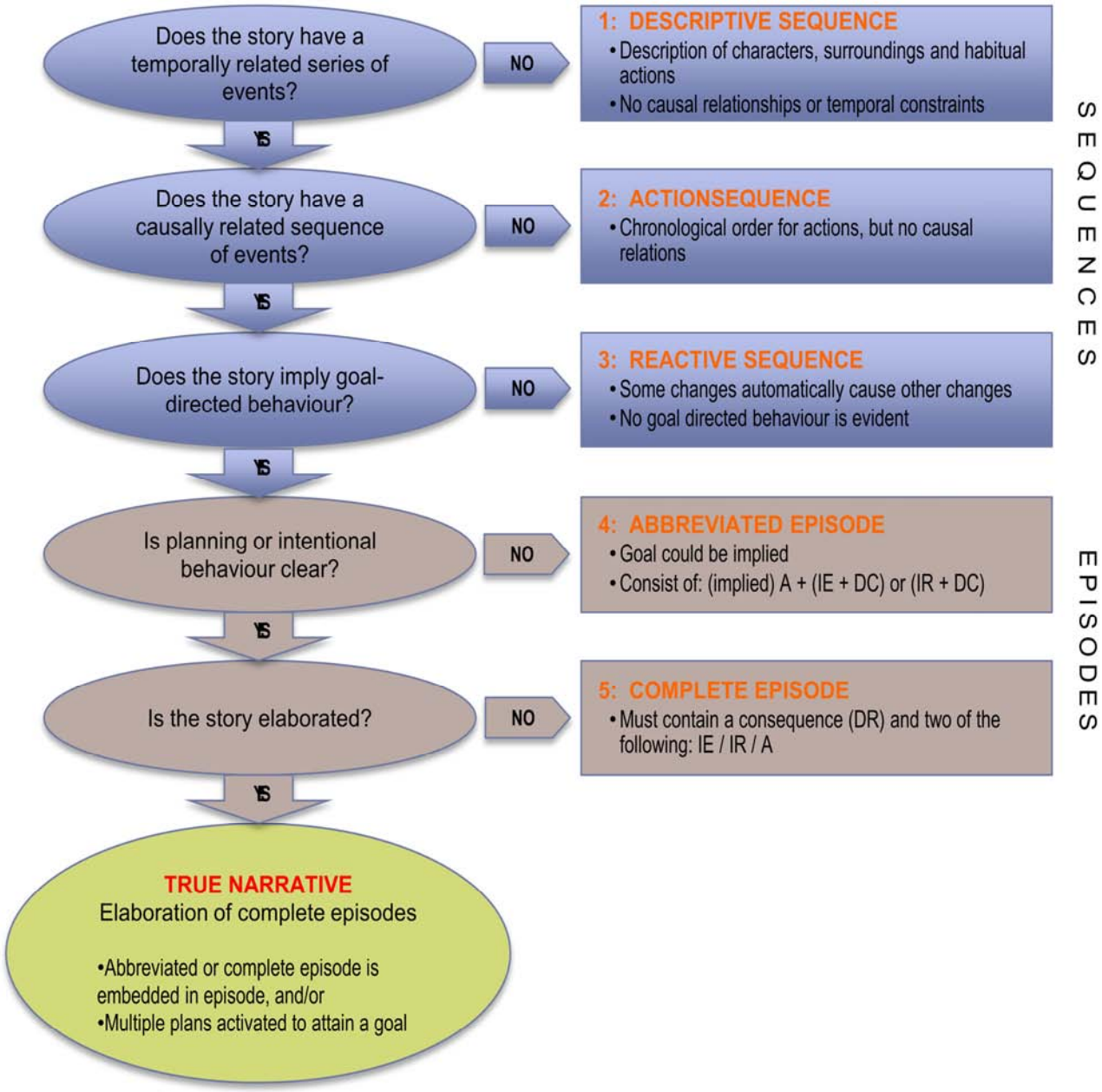
  Ratings from 1 to 6 are assigned to denote complexity as follows:

  1. Descriptive sequence
  2. Action sequence
  3. Reactive sequence
  4. Abbreviated/incomplete episodes
  5. Complete episode
  6. True narratives

- Write the value in the appropriate square on the **summary sheet** in the appropriate square.

Please turn over for the binary decision tree.

Structural patterns in order of increasing complexity:



BINARY DECISION TREE
Based on Peterson and McCabe (1983) and Westby (2005)

Adapted, based on Westby (2005)

APPENDIX 7

Microstructure: Scoring, definitions and examples

PRODUCTIVITY

1. Total number of words (TNW)

- The **words of all statements** that were included in the analysis should be counted.

- **Count** and note the **number of words for each T-unit** on the transcription sheet.

Recurrence of words for emphasis	1 word	Example: ***no, no, no***
Contractions	2 words	Example: ***he's***
Compounds (learned as a unit by pre-schoolers)	1 word	Example: ***police car***
Ritualised reduplications	1 word	Example: ***night-night***
Contracted negatives	2 words	Example: ***don't, can't***

- **Add** to calculate the total the **number of words** (TNW) and write the total on the **summary sheet** in the appropriate square.

2. Total number of T-units (TNT)

- Count the **number of complete T-units** to calculate the story length.

- Note the number of **incomplete or unusable T-units** on the summary sheet. Single words or phrases (i.e. utterances without a verb) should be deleted and noted as "***incomplete***" or "***unusable***" T-units.

- Complete the **summary sheet** in the appropriate square.

SYNTACTIC COMPLEXITY

1. Mean length of T-unit (MLT)

- Words affected during the transcription of T-units should be omitted during the calculation of the MLT. Calculate MLT by dividing the TNW by the total number of T-units.

  TNW ÷ TNT = MLT

- Numbers are **rounded off to two decimal places** and should be written on the summary **sheet** in the appropriate square.

2. Average length of the five longest T-units (A5LT)

- **Circle** the **5 longest T-units** and calculate the A5LT by dividing the TNW of these utterances by five.

  TNW of 5 longest T-units ÷ 5 = A5LT

- Numbers are **rounded off to two decimal places** and should be written on the **summary** sheet in the appropriate square.

3. Subordination

- **Mark** the **conjunctions** by **circling** them.
  The conjunctions ***and*** and ***and then*** are **not included** in the tally, because it cannot be determined if they are being used in their logical sense or only to sustain the conversation.

- **Count** the number of coordinating and subordinating clauses.
  Examples of literate conjunctions include, but are not limited to:

when	***since***	***before***	***after***	***while***
because	***so***	***as a result***	***if***	***until***
but	***therefore***	***however***	***as***	***whether***
although				

  Types of subordinated clauses

  Dependent clauses that function as adverbs (***while, until, after, as, although, because***).
  Dependent clauses that function as adjectives (***that, who, where***)
  Dependent clauses that function as nouns (***how, what***)

- **Specify the type of clause** in the appropriate square on the summary sheet.
  Examples of coordinating conjunctions: ***and, then, but, so*** (but not ***so that***)

  The boy liked his bike, so the boy took the bike home. (2 units)
  The children were tired, so they went to bed. (2 units)

  Examples of subordinating conjunctions: ***when, because, although, who, so that***

  His sister played with her doll while their mother was hanging up the clothes. (1 unit)
  When the police left, the dog got a bone. (1 unit)

- The **mean percentage of subordination** used is **calculated** by dividing the total number of subordination by the total number of T-units.

  Total subordination ÷ TNT = mean % subordination used

- Numbers are **rounded off to two decimal places** and should be written on the **summary sheet** in the appropriate square.

LEXICAL DIVERSITY

1. Total number of different words (NDW)

- NDW used in the narrative is determined by **writing down every word once** on the NDW scoring sheet. Words affected by pruning should not be counted. Example of the table used to calculate number of different words:

A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	Y
						Total:	

- **Coding conventions**

  Contractions should be written separately and counted as two words (***that's = that is***).

  Compound words such as ***police car*** should be counted as one word.

  Singulars and their corresponding ***plurals*** should be counted as two words (***toy*** and ***toys***).

  Infinitives and their corresponding ***particles*** should be counted as two words (***wave*** and ***waved***).

- To correct for differences in narrative length, the NDW is calculated as a percentage of the TNW.

  NDW ÷ TNW = NDW percentage score

- Numbers are **rounded off to two decimal places** and should be written on the **summary sheet** in the appropriate square.

2. Type-token ratio (TTR)

- **Calculate** the type token ration (TTR) by dividing the NDW by the the square root of twice the total number of words.

  NDW ÷ { √ (total number of words) x2 } = TTR

- Numbers are **rounded off to two decimal places** and should be written on the **summary sheet** in the appropriate square

Based on Vorster (1980)

APPENDIX 8

Use of literate language features: Scoring, definitions and examples

USE OF LITERATE LANGUAGE FEATURES

1. Use of adverbs

- **Count only *–ly* adverbs** that convey tone, attitude, time or manner, **including** those that are **structurally used incorrectly** but still modify a verb. Examples:

  The dog accidentally knocked the washing over.

  The mother quickly phoned the police.

  She phoned quick. (Stucturally incorrect)

  Other *–ly* adverbs used in the narratives include: ***slowly, nicely, suddenly and finally.***

- The *–ly* form in, ***They lived happily ever after,*** was **not credited** as this formal closing statement is learnt as a unit and most probably does not reflect the ability to use an *–ly* adverbs.

- Narratives were scored only in terms of the **presence or absence of *–ly* adverbs**. This should be noted on the **summary sheet** in the appropriate space.

2. Elaboration of the noun phrase (ENP)

- Count a noun phrase as one ENP when it has **more than one modifier** preceding the noun (***a very special dog***) **or** has **qualifiers**, such as prepositional phrases and relative clauses, following the noun (***he chased the boy on the bicycle***).

- Consider **determiners** (e.g. ***the, a, an this***) as modifiers. Count **appositives** as noun phrase elaboration (e.g. ***The boy, Tom, had a dog and a bike***).

  Examples of modifiers (i.e. words in the noun phrase immediately preceding the main noun)

  She shouted at the naughty dog. (1 ENP)

  The dog was a special dog. (1 ENP)

  Examples of qualifiers (i.e. words that follow the noun)

  One of the policemen got out of the car. (1 ENP)

  The boy on the bike fell. (1 ENP)

  They gave the dog that helped them a bone. (1 ENP)

- Add the total of noun modifiers and noun qualifiers used to **calculate** the total number of ENP used. Divide the total by the total number of T-units used to correct for narrative length.

Total ENP ÷ TNT = ENP percentage score

- Numbers are **rounded off to two decimal places** and should be written on the **summary sheet** in the appropriate square.

USE OF MENTAL AND LINGUISTIC VERBS

- Count the verbs that denote the **cognitive and linguistic processes of humans, animals, or fictitious characters.**

- In the context of narrating past events, count active, not passive voice, and only verb tenses other than present and present continuous.

- **Count all occurrences** of a mental or linguistic verb when it is **repeated for emphasis** (i.e. ***"He was calling and calling")***.

  Examples of ***mental verbs*** (refer to various acts of thinking) included in the narratives: ***feel, thought*** and ***know.***

  The boy thought, "oh thanks!"
  She didn't know he was a robber.

  Examples of ***linguistic verbs*** (refer to various acts of speaking) that occurred in the narratives include: ***shouted, said, skel, warned, called, told*** and ***scream.***

  He told his dog to be quiet.
  The mother called the children inside.

- **Note the following exceptions:**

  In the form ***Mother called the police***, credit should not be given to ***called*** as it is used as a synonym for ***phoned***.

  Bark should only be given credit when used as a linguistic process (***Woof, woof he barked***) and not if it is only used a typical action performed by dogs, such as ***eating*** and ***scratching*** (***The dog is barking***).

- The total number of mental and linguistic verbs should be calculated by dividing it by the total number of T-units to correct for narrative length.

  Total M/L verbs ÷ TNT = M/L verbs percentage score

- Numbers are **rounded off to two decimal places** and should be written on the **summary sheet** in the appropriate square.

Based on guidelines by Greenhalgh and Strong (2001)

APPENDIX 9

Content: Scoring, definitions and examples of abstraction used

ABSTRACTS PER T-UNIT

Make judgments regarding the content of each T-unit and tick the appropriate space on the transcription sheet.

1. Labels per T-unit

Mark all T-units, where perceptible objects are named or labelled, in a way that the naming of the object is the sole purpose of the utterance.

There is a boy / there is a dog / I see a bicycle

2. Picture facts

Tick off all the picture facts, i.e. the perceivable actions, properties and circumstances. Do not include the "labeling" already marked.

- ***Perceivable actions***

  The dog is sleeping on the grass

  The children are sleeping

- ***Perceivable properties of the characters***

  The mommy is wearing pyjamas

- ***Perceivable circumstances***

  The robber is in the police car

3. Abstractions

Mark all interpretations of events that are not physically perceivable.

- ***Proper names and/or indication of relationships***

  "Rex" and ***"his mommy"*** instead of merely ***"the dog"*** and ***"she"***

Note:

It must be ***his mother***, ***the mother*** does not count, because young children use ***the mother*** as the equivalent of ***the women.***

Her little brother, Johnny counts as **two abstractions**.

A particular name or relationship is credited once only for each story.

- ***Specification of time***

  one Saturday morning

  one evening

- ***Non-perceptible circumstances***

  Their father was at work.

- ***Inference of appropriate direct/indirect speech***

  Thank you very much, the family said.

  Their mother told them to go to bed.

- ***Inference of appropriate feelings and thoughts***

  The dog was sad.

  The sister was scared.

- ***Appropriate transitions*** (i.e. appropriate information regarding events which occur between two pictures)

  The dog heard a buglar outside. (Picture 8)

  The mommy phoned the police. (Picture 11)

- ***Appropriate prologues*** (i.e. appropriate information preceding the whole story)

  Once upon a time…

  One morning the family was having a lovely time playing in the garden

- ***Appropriate epilogues*** (i.e. appropriate information following the whole story)

  The dog got a bone and they all went to sleep

4. Nonsense:

Mark prepositions demonstrating a complete misinterpretation of the picture facts. Example:

Where the mother is phoning the police it is said that ***She is listening to the radio.***

- Calculate the total number of abstracts per T-unit by dividing the total number of abstracts by the total number of T-units.

  Total number of abstracts ÷ TNT = Abstractions/T-unit

- Calculate the total number of labels, picture facts and nonsens used per T-units using the same formula.

  Total number of labels ÷ TNT = Lables per T-unit

  Total number of picture facts ÷ TNT = Picture facts per T-unit

- Calculate the **abstract-concrete index** by dividing the abstracts per T-unit by the sum of the labels per T-unit and picture facts per T-units.

  Abstracts per T-unit ÷ (Lables/T-unit + Picture facts/T-unit)

- Numbers are **rounded off to two decimal places** and should be written on the **summary sheet** in the appropriate square.

Based on Vorster (1980)

APPENDIX 10

Example of a narrative

Subject: B003 **Age:** 6 years 4 months

SUMMARY SHEET

Relevant information referring to selection criteria or history:

Standard scores of language Ax TACL: **113** PPVT: **100** AGS: **106**

Home language: **English and Afrikaaans** Medical History: **No problems reported**

Scholastic progress: **No concerns reported** Other special services: **None**

Speech/language development: **Reportedly within normal limits.**

Transcription Notes:

Total number of complete T-units					**T-units**	17
Total number of incomplete/unusable T-units					**# T-units**	0
Total number of words					**TNW**	172
TNW 172	÷	T-units 17	=		**MLT-W**	10.12
Tot no words in 5 longest T-units 80	÷	5	=		**A5LT**	16
Total number of different words					**NDW**	83
NDW 83	÷	√(TNW) x 2 18.55	=		**Type-token ration**	4.47

Story grammar	**Present? Y/N**
Setting	Y
Initiating events	Y
Internal response	Y
Internal Plans	N
Attempts	Y
Direct Conseq.	Y
Reactions	Y

Narrative Level 6: Complex narrative

No of mental/linguistic verbs 2	÷	T-units 17	=	**Mental/ling verb/T-unit**	0.12
Narrative device: Formal opening present?				**Formal opening (Y/N)**	Yes
Narrative device: Formal closing present?				**Formal closing (Y/N)**	No
Total number of labels 0	÷	T-units 0	=	**Labels/T-unit**	0
Total number of picture facts 4	÷	T-units 0	=	**Picture facts/T-unit**	0.24
Total number of abstractions 22	÷	T-units 0	=	**Abstr./T-unit**	1.29
Total number of nonsense 0	÷	T-units 0	=	**Nonsense/T-unit**	0
Abstrac./T-unit 1.29	+	Labels/T-unit + Pic. Fact/T-unit 0.24	=	**Abstract-Concrete Index**	5.38
Total number of –ly adverbs 0			=	**Adverbs present? Y/N**	No
Total no. noun modifiers used 9	+	Total no. of qualifiers used 0	=	**Total no ENP used**	9
Total ENP used 9	÷	T-units 17	=	**ENP/T-units**	0.53
Total coordinating conjunctions used 5	÷	T-units 17	=	**COORD**	0.29
Total subordinating conjunctions 2 Including 1 embedded	÷	T-units 17	=	**SUBORD**	0.12

T-unit	Utterance		wrds	Story grammar							Structural complexity		Content				Literate language			
				S	IE	IR	IP	A	DC	R	Coord	Subord	Labels	Pic facts	Abstract	Nonsense	-ly adv	ENP mod	ENP qual	M/L verbs
1	(there was a family with a little girl and a little boy ~~and a little~~ and mom and a dog		16	✓											1			2		
2	and then while the mom was doing the laundry ~~the two...~~ the little boy was cleaning his bicycle		16	✓								✓			1			1		
3	and the little girl was playing with her doll		8	✓										1				1		
4	~~then~~ the dog ~~ran try...~~ ran to the (washing line) ~~and almost knocked~~ and almost choked itself ~~in uh~~ by the (washing line)		13		✓				✓		✓				2					
5	then the little boy (fell off) the bicycle and hurt his knee		10						✓		✓				1			1		
#	sore! ~~(pointing and laughing)~~		–																	
6	the little girl went to the house, ~~went to~~ the door ~~and told her mom~~ and asked her mom: ~~when is it~~ is it night time yet?		18								✓				2					asked
7	and then they both went to sleep in their nice warm bed		10												1			1		
8	they fell asleep		3												1					
9	and the dog was also falling asleep		6												1					
10	the dog saw a thief ~~outside in the win...~~ outside and then was barking (and barking and barking) and woke up the children		15		✓			✓	✓		✓			1	1					
11	~~then~~ he told the mom there was thief outside wanting to take the little boy's bicycle		15		✓	✓						✓			2			1		told
12	~~then~~ the mom called the cops		5					✓							1					
13	the cops came and took the thief in the police car		11						✓		✓				2			1		
14	and the one sergeant waved to the friends		7											1	2			1		
15	~~then~~ he brought his bicycle into the house in the night		10							✓					1					
16	and ~~then~~ the dog had a bone		5											1						
17	and ~~then~~ everybody was so happy		4							✓					1					
17	**Total no. of complete T-units (length)**	**Total number of words (TNW)**	172	✓	✓	✓	0	✓	✓	✓	5	2	0	4	22	0	0	9	0	2
0	**Total no. of incomplete T-units**	**Mean length of T-unit (MLT-W)**	10.12															9		
		Average no. words in 5 longest utterances (A5LT)	16																	

( ) one word

Formal opening

Subject: B003

Number of different words (NDW)

A	B	C	D	E	F	G	H
a almost also and asked asleep	barking bed bicycle bone both boy boy's brought by	called came children choked cleaning cops	dog doing doll door	everybody	falling family fell friends	girl	had happy he her his house hurt
I	**J**	**K**	**L**	**M**	**N**	**O**	**P**
in into is it itself		knee	laundry line little	mom	nice night	off one outside	playing police car
Q	**R**	**S**	**T**	**U**	**V**	**W**	**Y**
	ran	saw sergeant sleep so sore	take the then there they thief time to told took	up		wanting warm was washing washing line waved went while with woke	yet
							Total: 83

APPENDIX 11

Ethics: Participant Information Leaflet and Consent form

Universiteit Stellenbosch
Fakulteit Gesondheidswetenskappe
Departement Spraak- Taal- en Gehoorterapie
Tel : (021) 938 – 9494

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM FOR USE BY PARENTS/LEGAL GUARDIANS

Title of the research project:	Development of an Assessment Protocol for Analysis of Narrative Skills of Children
Principle investigators:	Prof. Seppo Tuomi, Mrs. Daleen Klop and Twanette Acker
Address:	Department of Speech-Language and Hearing Therapy, University of Stellenbosch
Contact number:	021-938 9494 or Twanette directly: 0834444560

Your child is being invited to take part in a research project. Please take some time to read the information presented here. Your child's participation is **entirely voluntary** and you are free to decline to participate. You are also free to withdraw him/her from the study at any point.

This study has been approved by the **Committee for Human Research at Stellenbosch University** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

Aims and objectives: The story telling/narrative skills of children have been found to be a precursor and a predictor of later academic success. Being able to identify children at risk for language based reading problems early would ensure early intervention and guide decisions regarding school readiness, placement and referral for special educational support.
There are currently no assessment tools, which give an overall picture of a child's narrative skills. The aim of the study is develop a single assessment protocol, covering the various parameters in analysing narrative skills.

Procedures: A wordless picture book has been developed to elicit stories from normally developing children in three different age groups. The aim is to develop a timeless, culture free story, and a complete protocol that could be used to analyse and score these stories for clinical use.

Pre-recording procedures: The researcher will spent an average of an hour spread over two to three days to establish rapport with your child at his/her school. All prospective candidates will undergo two language measures to assess their level of understanding vocabulary and sentences. Both assessments involve the child pointing to the appropriate picture in response to a stimulus word or sentence produced by the examiner

Task administration and recording procedures: Each child will be seen individually to complete the story telling task at his/her school. The child will look through the picture book silently, after which s/he will be instructed to tell the story aloud turning the pages as s/he goes along. The stories will be recorded by means of a high quality video recorder for analyses.

Processing of data: The investigator will transcribe all of the stories from the video recordings. These will be analysed in terms of the length and structure of the stories, the variety of words, complexity of the sentences, etc. The stories elicited from the three different age groups will be compared.

Why has your child been invited to participate?

This protocol needs to be assessed regarding the appropriateness of the story elicitation procedures.

A total of sixty monolingual English speaking children, representing a range of social backgrounds, who are currently enrolled in the same mainstream school with normal development will be approached. Three age groups will be targeted to assess the sensitivity of the protocol to show development of story telling skills during different critical periods. Each group has an equal number of male and female subjects.

You will be asked questions relating to your child's background in questionnaire format as a way of confirming that your child adheres to the selection criteria set for the subject group.

Will your child benefit from taking part in this research?

There are no personal or financial benefits for your child in participating in this study. However, in developing this assessment tool, speech and language therapists might be able to identify children with difficulties in story construction and special educational needs at an early age and enable them to predict their literacy skills as well as guide early intervention and decisions regarding school placement and educational support.

Is there any thing else that you should know or do?

- You could contact any one of the investigators should you need any more information on this study.
- You can contact the Committee for Human Research at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by your child's study investigator.
- You will receive a copy of this information and consent form for your own records.

The Western Cape Education Department and the Ethics and Standards Committee of the University of Stellenbosch have approved this research project.

Please feel free to contact me should you need any further information or should you like to arrange a meeting to discuss any of the above issues. If you decide for your child not to participate in the study, please cross out the consent form without signing it. This is just for my records and to avoid contacting you for a reply should I not hear from you by the RSVP date.

Page 3 is a copy of the consent form for your records. Please complete and sign the copy on page 4 and return it to school by Friday, 19th May.

Thank you for your time. I am looking forward to hearing from you soon.

Kind Regards
Twanette

THIS IS YOUR COPY TO KEEP

Assent of minor

I (*Name of Child/Minor*)…….……..……. have been invited to take part in the above research project.

- My parents (and the study investigator) have explained the details of the study to me and I understand what they have said to me.
- They have also explained that this study will involve me looking at a picture book and telling stories about the pictures, which will be videotaped.
- I also know that I am free to withdraw from the study at any time if I am unhappy.
- By writing my name below, I voluntary agree to take part in this research project. I confirm that I have not been forced either by my parents or anybody else to take part.

....

Name of child **Independent witness**

(To be written by the child if possible)

Declaration by parent/legal guardian

By signing below, I *(name of parent/legal guardian)* …….……...……. agree to allow my child *(name of child)* ……..……..… who is ……. years old, to take part in a research study entitled "Development of an Assessment Protocol for Analysis of Narrative Skills of Children".

I declare that:

- I have read or had read to me this information and consent form and that it is written in a language with which I am fluent and comfortable.
- I understand that all the information will be confidential and that only the principal investigators will know the identity of my child.
- If my child is older then 7 years, he/she must agree to take part in the study and his/her ASSENT must be recorded on this form.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to let my child take part.
- I may choose to withdraw my child from the study at any time and my child will not be penalised or prejudiced in any way.
- My child may be asked to leave the study before it has finished if the researcher feels it is in my child's best interests, or if my child does not follow the study plan as agreed to.

....

Signature of parent/legal guardian **Signature of witness**

Signed at (*place*) .....…..……...…….. on (*date*) ……...……..……...

Declaration by investigator

I, ***Twanette Acker*** declare that:

- I have given detailed written information on this study and I am happy to discuss and explained the information in this document on request to the parents/guardians of ……
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understand all aspects of the research, as discussed above

....

Signature of investigator **Signature of witness**

Signed at *Bellville* on *22 March 2006*.

PLEASE COMPLETE THIS COPY (Page 4 only) OF THE CONSENT FORM AND RETURN IT TO SCHOOL BY 19th May 2006

Assent of minor

I (*Name of Child/Minor*)……..……..……. have been invited to take part in the above research project.

- My parents (and the study investigator) have explained the details of the study to me and I understand what they have said to me.
- They have also explained that this study will involve me looking at a picture book and telling stories about the pictures, which will be videotaped.
- I also know that I am free to withdraw from the study at any time if I am unhappy.
- By writing my name below, I voluntary agree to take part in this research project. I confirm that I have not been forced either by my parents or anybody else to take part.

....

Name of child **Independent witness**

(To be written by the child if possible)

Declaration by parent/legal guardian

By signing below, I *(name of parent/legal guardian)* ……..……...……. agree to allow my child *(name of child)* ……..……..…. who is ……. years old, to take part in a research study entitled "Development of an Assessment Protocol for Analysis of Narrative Skills of Children".

I declare that:

- I have read or had read to me this information and consent form and that it is written in a language with which I am fluent and comfortable.
- I understand that all the information will be confidential and that only the principal investigators will know the identity of my child.
- If my child is older then 7 years, he/she must agree to take part in the study and his/her ASSENT must be recorded on this form.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to let my child take part.
- I may choose to withdraw my child from the study at any time and my child will not be penalised or prejudiced in any way.
- My child may be asked to leave the study before it has finished if the researcher feels it is in my child's best interests, or if my child does not follow the study plan as agreed to.

....

Signature of parent/legal guardian **Signature of witness**

Signed at (*place*) .....…..……...…….. on (*date*) ……...……..……...

Declaration by investigator

I, ***Twanette Acker*** declare that:

- I have given detailed written information on this study and I am happy to discuss and explained the information in this document on request to the parents/guardians of ……...
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understand all aspects of the research, as discussed above

....

Signature of investigator **Signature of witness**

Signed at *Bellville* on *9 May 2006*

APPENDIX 12

Ethics: Letter to the School Principals

Universiteit Stellenbosch
Fakulteit Gesondheidswetenskappe
Departement Spraak- Taal- en Gehoorterapie

22 February 2006

FOR ATTENTION:

School Address

Dear Sir or Madam:

Research project at xxx School

Thank you for getting back to me earlier today. Attached please find the following documents as discussed:

- Research protocol
- Letter of consent (which will be copied on a letter head to go to parents)
- Letter of approval by the Department of education

Plan of action:

Step 1

The next step for me is to **identify possible research candidates**. I will need 20 children in each of the following age groups (at the time of the recording which I am aiming for in March and April 2006):

Group 1: Pre-primary group, aged between 5 years and 6 years old
Group 2: Grade 1 group, aged between 6 years and 7 years old
Group 3: Grade 3 group, aged between 8 years and 6 months and 9 years and 6 months old

I am hoping that you could help me with this. I am happy to work through class register list and dates of birth for the first screening.

Step 2

Once possible candidates have been identified, I will send a letter of consent home with the child for the parent to sign. Children who's parents gave consent will be send a case history form to complete and this will be used to do the second screening (children with any additional needs will be excluded).

Step 3

Data collection: I will discuss this with you nearer to the time (one is never sure how long it will take for parents to respond). I will need a venue for recording my data. Ideally this should be a room with reasonable good light and not too noisy. If a small table and two small chairs could be made available it would be great. If not I will make a plan.

I am looking forward to meeting you on Tuesday at 13h30. Do not hesitate to contact me should you require any further information.

Yours truly,

Twanette Acker
(Speech Therapist and Audiologist)
E-mail: alex.twanette@absamail.co.za
Cell: 0834444560 or at home 9130622

APPENDIX 13

Ethics: Approval by the Ethics Committee of Health Sciences, University of Stellenbosch

UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot • your knowledge partner

17 November 2005

Mrs D Klop
Dept of Speech-Language-Hearing Therapy

Dear Mrs Klop

RESEARCH PROJECT: **"DEVELOPMENT OF AN ASSESSMENT PROTOCOL FOR ANALYSIS OF NARRATIVE SKILLS IN CHILDREN"**
PROJECT NUMBER : **N05/08/142**

At a meeting of the Committee for Human Research that was held on 7 September 2005 the above project was approved on condition that further information that was required, be submitted.

This information was supplied and the project was finally approved on 16 November 2005 **for a period of one year from this date**. This project is therefore now registered and you can proceed with the work. Please quote the above-mentioned project number in all further correspondence.

Please note that a progress report (obtainable on the website of our Division) should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary).

Patients participating in a research project in Tygerberg Hospital will not be treated free of charge as the Provincial Government of the Western Cape does not support research financially.

Due to heavy workload the nursing corps of the Tygerberg Hospital cannot offer comprehensive nursing care in research projects. It may therefore be expected of a research worker to arrange for private nursing care.

Yours faithfully

CJ VAN TONDER
RESEARCH DEVELOPMENT AND SUPPORT (TYGERBERG)
Tel: +27 21 938 9207 / E-mail: cjvt@sun.ac.za

CJVT/ev

C:\DOCUMENTS AND SETTINGS\EVISAGIE 000\MY DOCUMENTS\KMN\PROJEKTE\2005\N05-08-142-001.DOC

DEPT SPRAAK-TAAL-EN GEHOORTERAPIE 2005 -11- 21

Fakulteit Gesondheidswetenskappe • Faculty of Health Sciences

Verbind tot Optimale Gesondheid • Committed to Optimal Health
Afdeling Navorsingsontwikkeling en -steun • Research Development and Support Division
Posbus/PO Box 19063 • Tygerberg 7505 • Suid-Afrika/South Africa
Tel: +27 21 938 9677 • Faks/Fax: +27 21 931 3352
E-pos/E-mail: rdsdinfo@sun.ac.za

APPENDIX 14

Ethics: Approval by Western Cape Education Department to conduct the Research

Mrs Twanette Acker
3 Boschendal Terrace
Van Riebeeckshof
BELLVILLE
7530

Dear Mrs T. Acker

RESEARCH PROPOSAL: DEVELOPMENT OF AN ASSESSMENT PROTOCOL FOR THE ANALYSIS OF NARRATIVE SKILLS IN CHILDREN.

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The Study is to be conducted from **1st March 2006 to 28th April 2006**.
6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December 2006).
7. Should you wish to extend the period of your survey, please contact Dr R. Cornelissen at the contact numbers above quoting the reference number.
8. A photocopy of this letter is submitted to the Principal where the intended research is to be conducted.
9. Your research will be limited to the following school: **xxx**.
10. A brief summary of the content, findings and recommendations is provided to the Director: Education Research.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Education Research
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.

Signed: Ronald S. Cornelissen
for: **HEAD: EDUCATION**
DATE: 20th February 2006